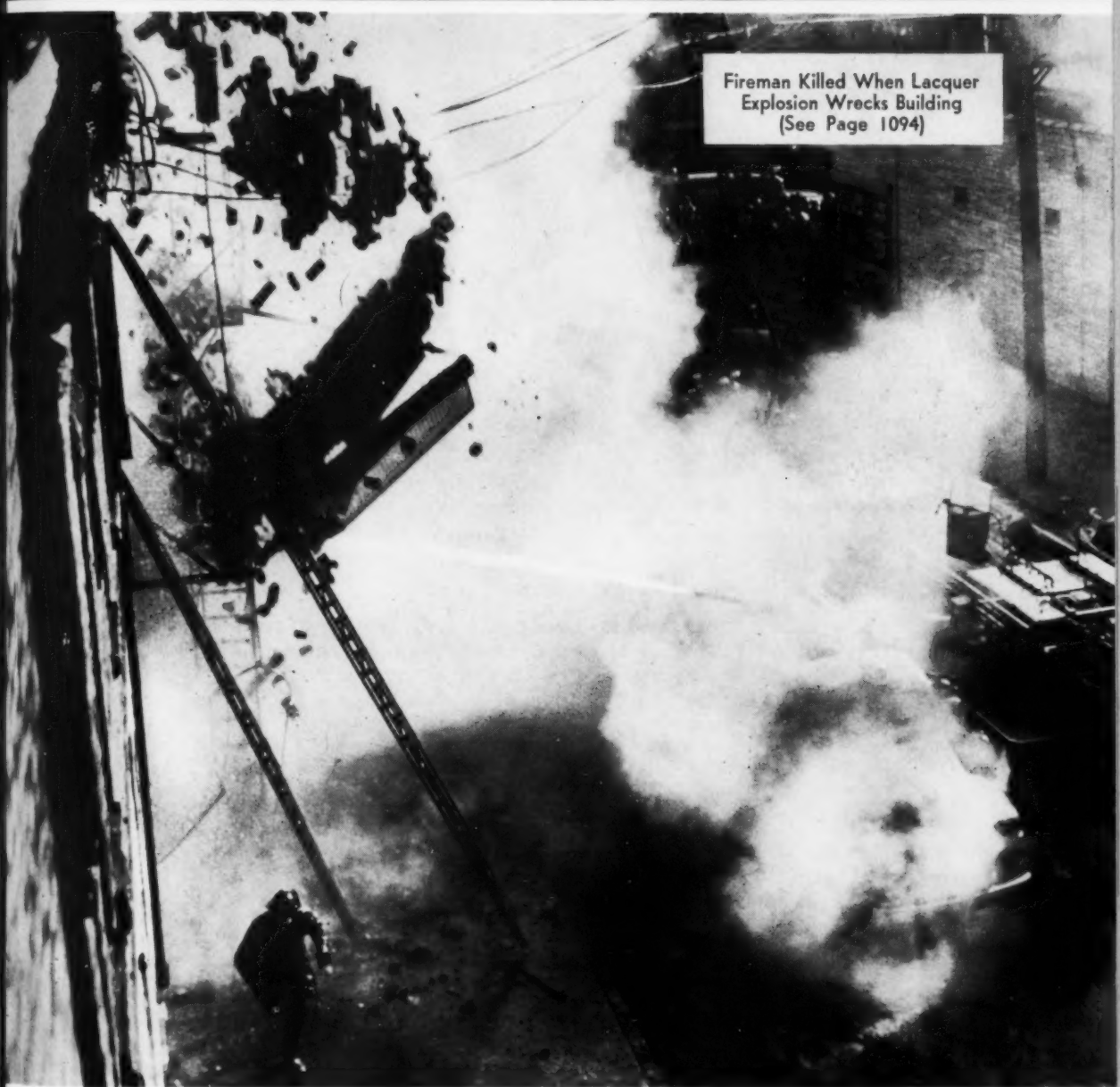
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

NOVEMBER, 1955



Fireman Killed When Lacquer Explosion Wrecks Building
(See Page 1094)

Published by CASE-SHEPPERD-MANN Department
BUSINESS PAPERS DIVISION • THE REUBEN H. DONNELLEY CORPORATION

Emerson Life-Line

To attach any of the "quick-connect" fittings, push it hard into the receptacle. You will hear a click as it locks into place, and the hose will not pull out.
To release the fittings, rotate the sleeve of the Schrader receptacle, and the hose fitting will come out.
Extension hose plugged into Schrader receptacle.
Fitting of second resuscitator about to be plugged into the "T" at the end of the extension hose.
One resuscitator mechanism already plugged in.
INH
RES
Tank wrench
The flexible connector may be attached to a commercial oxygen tank, such as is used in welding.
Aspirator may be plugged into end of extension hose, if needed.
Turn valve on mechanism to RES for resuscitation or INH for inhalation (as indicated by the arrows).

From free booklet on resuscitation "Know Your Emerson". A special Navy model is shown.

In resuscitation speed saves lives.

Sometimes the person who needs your help is hard to reach . . . down a steep embankment . . . up on a roof . . . trapped under an overturned vehicle. As quickly as you can get to the victim's face with one hand, your **extension hose** can bring him the breath of life.

Sections of the Emerson "life-line" join instantly, as you push the fitting of one into the quick-connect receptacle of the other. You bring the small resuscitator mechanism in your hand and leave the bulky oxygen tanks behind. Hundreds of feet behind, if you choose.

You can do it at very little expense, if you have a dual Emerson. All you need is extension hoses (50 feet for $20) and an extra aspirator ($10) to give your resuscitator this added "fourth dimension" of speed to inaccessible places.

Write us for full details.

J. H. EMERSON COMPANY

32 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASSACHUSETTS, U. S. A.

YOU are not immune!

During 1954 many sections of North America,
never before visited by disaster,
were ravaged by wind, water,
hail, fire, explosion, and earthquake.

Don't be complacent!

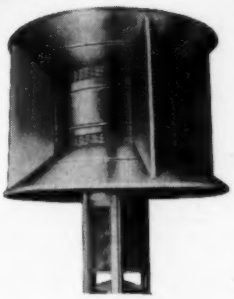
You are not immune,
but you need not be unprepared.

Winter, with doors and windows shut
against the cold
reduces the effect of a warning signal.
Is your present siren or alarm system adequate?
FEDERAL can furnish larger and louder sirens.

A good warning system should do more
than announce a fire;
it should alert your entire population
to take cover or evacuate;
it can also summon civil defense,
first aid, and emergency crews.

Avert panic, act with planning,
and you reduce casualties.

Don't be a victim!
Fire is not your only hazard!
Complete your "Disaster Warning System" now,
you may be living on borrowed time!
Write today for information
on FEDERAL Fire Alarm and Air Raid Sirens.
We can help.



FEDERAL SD10
2-tone
Air Raid Siren

FEDERAL STL10
Fire Alarm Siren

FEDERAL
SIGN and SIGNAL
Corporation

8702 S. State St., Chicago 19, Ill.

FIRE ENGINEERING

A Consolidation of Fire and Water Engineering, The Fire Engineer, Fire Protection and Fire Service

I. HERBERT CASE, General Manager
FRED SHEPPERD, Editor
KARL M. MANN, Advertising Director

ROI B. WOOLLEY, Assistant Editor
D. FERGUSON, Editorial Assistant

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MEMBER
Audit Bureau of Circulations
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Thanksgiving

THIS is the time of the year when we pause to count our blessings; to give thanks for them; to take stock of accomplishments, and of lost opportunities.

● It is a time for appreciating the past—but looking ahead to the wonderful future. For planning for those tomorrows—and that new equipment; those additional men; for that advanced training program; for making your job, your fire department more productive to yourself, and your community.

● We hope we shall occupy a place in your plans and programs for greater progress. We, too, have our objectives—to make FIRE ENGINEERING of even greater value to you, and to our growing family of readers—and advertisers' in the months to come than it has been in its 78 long years of busy existence.

● And so, in this spirit, we extend to you, and you, and you, our heartfelt wishes for a real, old fashioned Thanksgiving, with all the trimmings.

The Publishers

FIRE ENGINEERING

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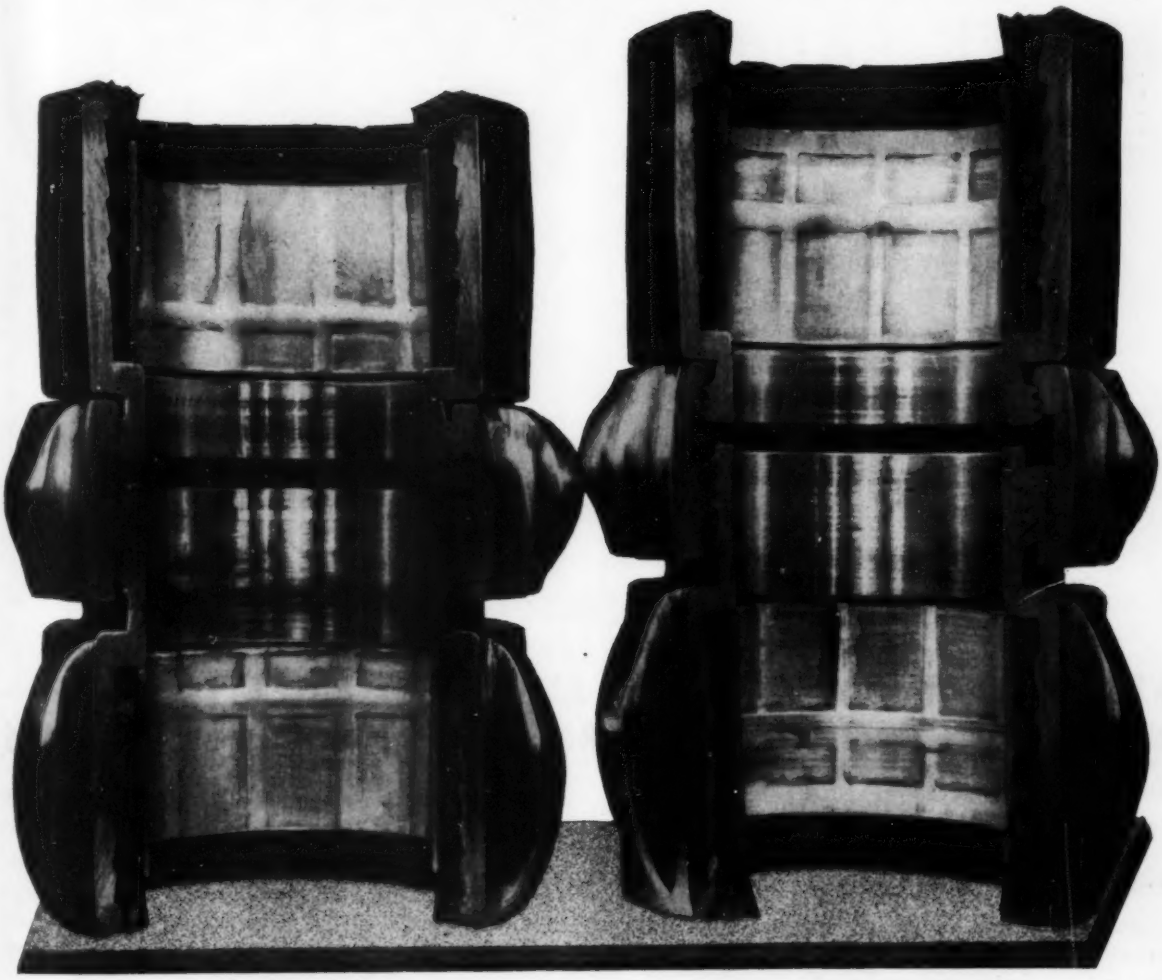
FABRILON

WITH MG COUPLINGS



REGULAR HI-PRESSURE

LIGHTWEIGHT—TAPERED THROAT—HI-YIELD BOWL

HI-PRESSURE RING —— FABRIC 3-LUG PATTERN

FABRIC FIRE HOSE COMPANY

THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA

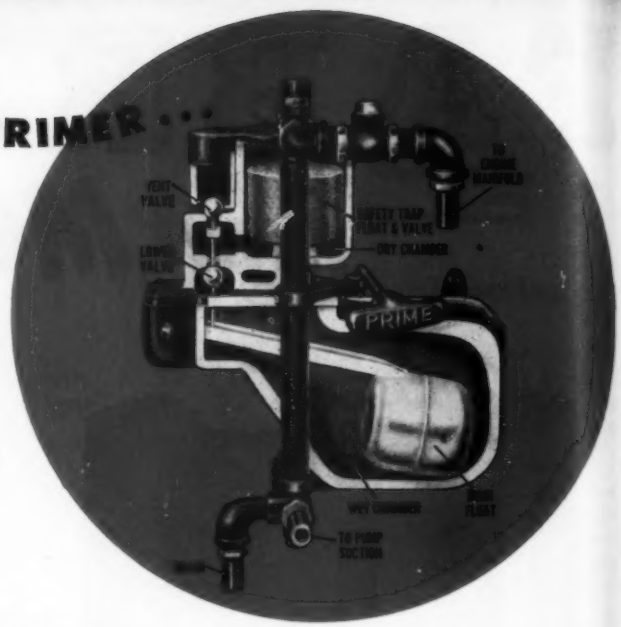
SANDY HOOK CONNECTICUT

IN CANADA BICKLE-SEAGRAVE, LTD. WOODSTOCK, ONTARIO

NOW! NEW MODEL PRIMER . . .

GIVES YOU 100% FASTER PRIMING

on Barton-American FIRE PUMPS



FEATURED ON BOTH MIDSHIP AND FRONT-MOUNTED PUMPS—KEEPS PACE WITH NEW, MORE POWERFUL TRUCK ENGINES

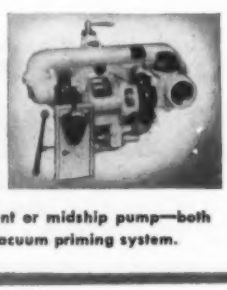
Here's a primer that *cuts priming time in half* on most new pumpers! And it utilizes the same time-tested engine vacuum principle that has proved its dependability for over a third of a century.

Not affected by engine age or wear, this primer always operates with original "like new" efficiency. Trouble-free in basic design and construction, it eliminates the nuisance of maintenance and lubrication required by ordinary primers. On standard installations it gives you frost-proof protection.

Exclusive, patented dual-float construction positively eliminates any possibility of water passing into the engine—another vitally important feature!

In every way, this new model primer keeps pace with the larger displacement engines now in common use on pumpers . . . and it's just one of the superior features you get on Barton-American Fire Pumps.

For complete details, write for Front-mounted Pump Bulletin 8330-B or Midship Pump Bulletins 8733 and 8734—and mention your interest in faster priming!



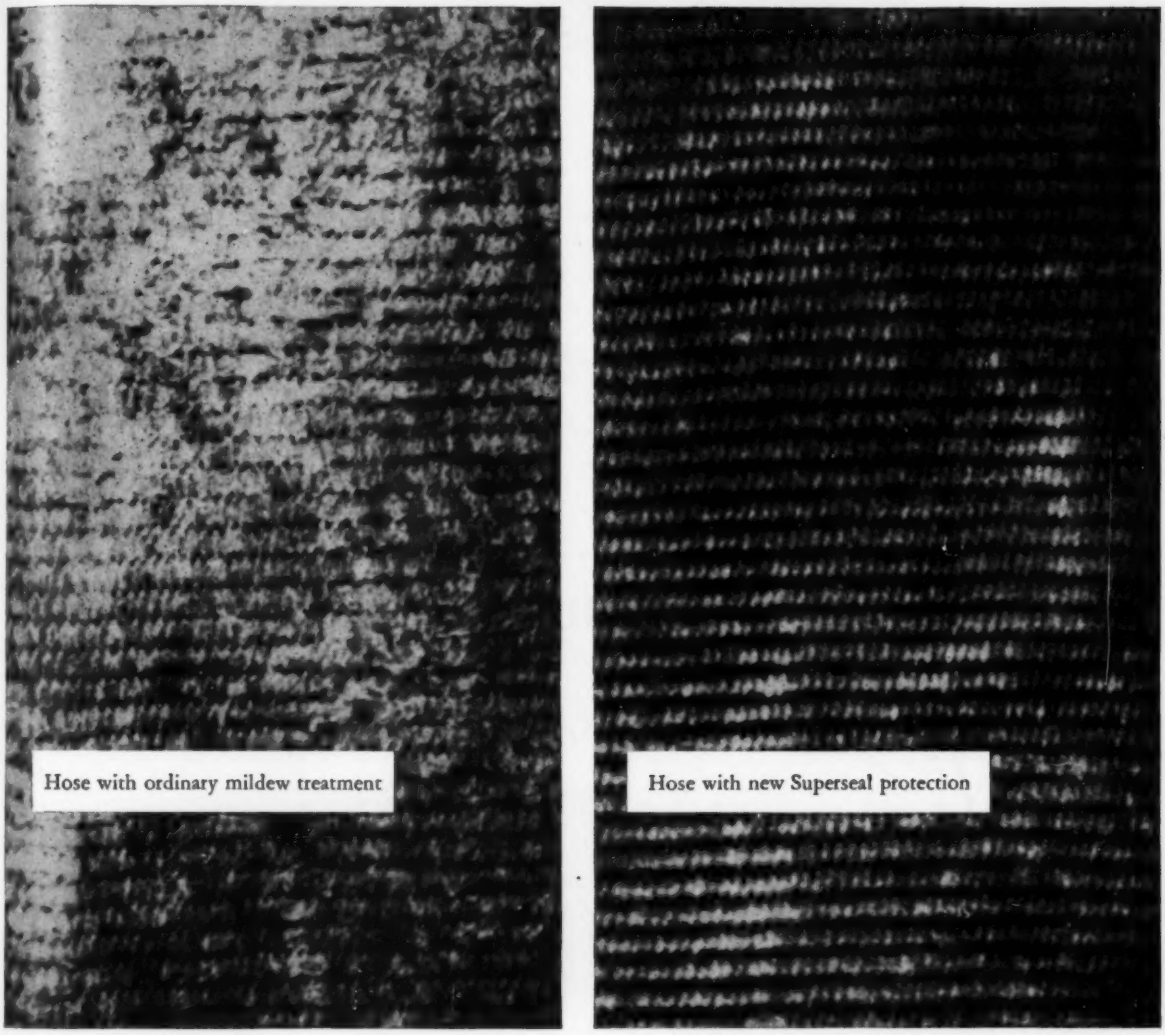
Choose either a front or midship pump—both include faster vacuum priming system.

AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN

In Canada:
American-Marsh Pumps (Canada) Ltd., Stratford, Ont.

B. F. Goodrich announces



New treatment makes hose 10 times more resistant to mildew attack

HERE'S proof that the new Superseal fire hose treatment, recently announced by B. F. Goodrich, resists moisture absorption and mildew attack 10 times more effectively than any other treatment.

Three lengths of hose were buried in a plot of ground that had been infested with mildew spores, maggots and microbes. After 8 weeks, the untreated hose (not shown here) was reduced to powder. The hose treated the old way (at left, above) wasn't much better—couldn't hold water. But the hose on the right, with B. F. Goodrich Superseal protection, looked good as new, still had 96% of its original strength.

This new B. F. Goodrich treatment is not just a surface application. The chemical solution penetrates and protects every cord in both the inner and outer jackets, prepares the hose for all sorts of weather. And, unlike ordinary treatments, the B. F. Goodrich process actually *increases* the adhesion between jacket and tube. And, in addition, it gives extra safety because the chemical makes B. F. Goodrich hose more flame-resistant.

Next time you need fire hose, order B. F. Goodrich and specify Superseal. It costs no more than ordinary treatments, but gives you maximum protection against mildew attack, rotting and freezing.

There's a B. F. Goodrich fire hose distributor near you, ready to bring this and other B. F. Goodrich hose improvements to your department. Give him a call or write *The B. F. Goodrich Company, Dept. M-510, Akron 18, Ohio.*

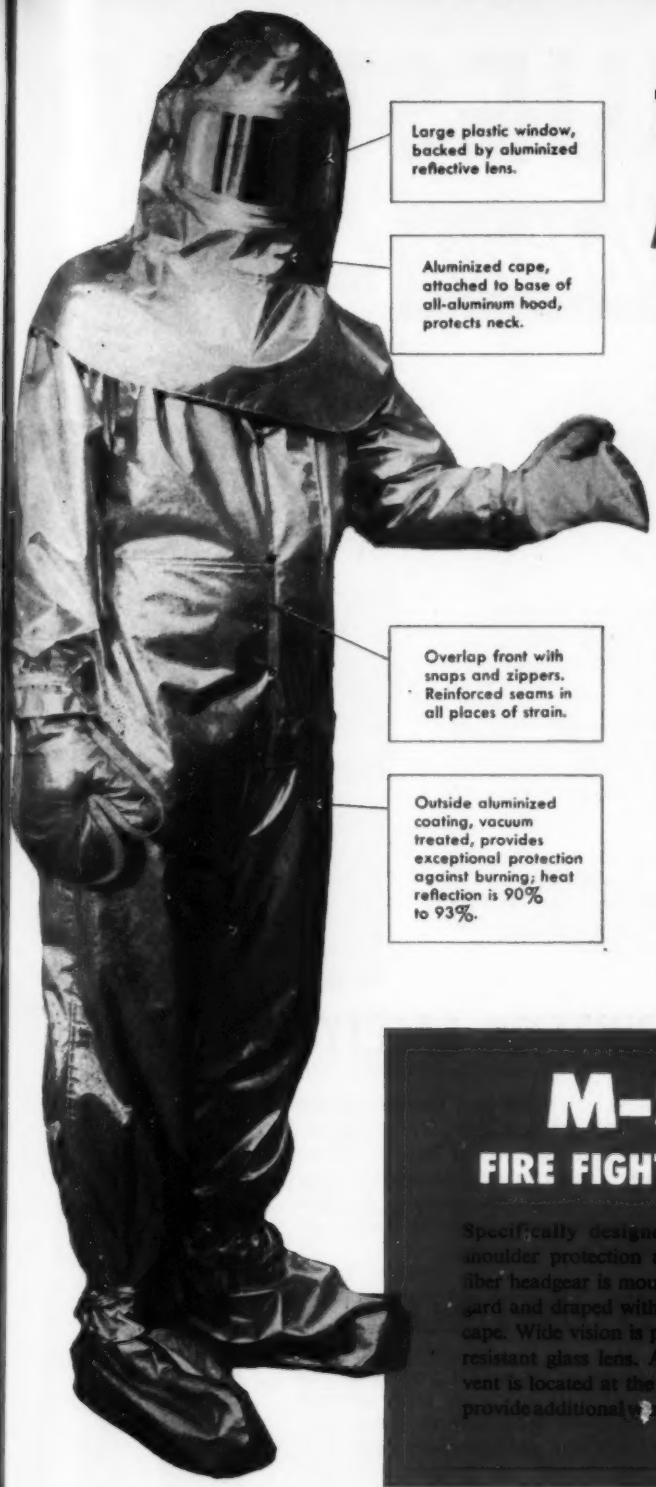
B.F.Goodrich
INDUSTRIAL PRODUCTS DIVISION

If you want the people of your community to be aware of the merciful ambulance service which you are providing, watch their heads turn when your name plates appear on the 1956 Miller Ambulances on the Cadillac chassis.

Both the *Standard* and *First Aider* models are available with equipment of every description for the purpose of saving lives and making patients comfortable. Write us and we will show you why Miller Ambulances command favorable attention and make a lasting impression.

Remember—
Miller cars do attract immediate attention — just one reason Miller sales are up a whopping 26%.

THE A. J. MILLER COMPANY
Bellefontaine, Ohio


Large plastic window, backed by aluminized reflective lens.
Aluminized cape, attached to base of all-aluminum hood, protects neck.
Overlap front with snaps and zippers. Reinforced seams in all places of strain.
Outside aluminized coating, vacuum treated, provides exceptional protection against burning; heat reflection is 90% to 93%.

The M-S-A APPROACH SUIT

...maximum protection against heat and flame for fire fighters

Here's an approach suit that lets fire fighters reach the seat of the fire, with maximum protection. The suit weighs less than 10 pounds, and is designed for freedom of movement. The M-S-A Fire Protection Suit is made from a basic glass fiber fabric, woven for extra tear strength and abrasion resistance. This fabric is coated on the inside with neoprene which sets up a vapor barrier, and on the outside with an aluminized compound that safeguards against burning and provides better heat reflection.

An inner liner of wool features a snap arrangement that permits convenient removal and replacement. Extra linings of heavier weight wool for better protection against high heat intensity are available. Write for complete details.

M-S-A FIRE FIGHTER'S HOOD

Specifically designed for face, neck and shoulder protection against extreme heat. A fiber headgear is mounted on a Type B Skullgard and draped with a glass fiber wool-lined cape. Wide vision is provided by a large heat-resistant glass lens. A manually operated air vent is located at the top-front of the cape to provide additional ventilation. Write for details.

MSA
SAFETY EQUIPMENT HEADQUARTERS

Call the M-S-A man on your every safety problem . . . his job is to help you.

MINE SAFETY APPLIANCES COMPANY
201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 76 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA, LTD.
Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, Sydney, N.S. • Representatives in Principal Cities in Mexico, Central and South America
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MIDWESTERN

Safety Clothing for FIREMEN

The Original

STRIPED SAFETY COAT

- Greater Visibility
- Exclusive Fabric Material
- Exclusive Safety Features
- Superior Design

The striped safety coat for firemen is an *original* MIDWESTERN development . . . featuring highly visible yellow stripes which are *rubberized as part of the material* . . . not painted, glued or sewed on!

Service records prove that Midwestern Striped Safety Coats withstand years of rugged duty . . . offer high safety visibility during the entire life of the garment. Designed exclusively for firemen . . . every detail in construction adds to the service, comfort, protection and long wear of the garment.

As an accident prevention measure, more and more fire departments are specifying Midwestern Striped Safety Coats as standard equipment. There are many imitations but *no substitute* for the workmanship, built-in comfort and longer wear you receive by specifying MIDWESTERN.

MIDWESTERN COMBINATION SAFETY SUIT

The Midwestern Safety Coat and Bunker Pants combination is preferred by many larger municipal departments. Detachable wool linings. Close fitting collar and elastic inner sleeve on coat keep out sparks and water. Pants have double-stitched seams, reinforcing rivets at points of strain, large, roomy pocket space.

QUALITY UNEXCELLED

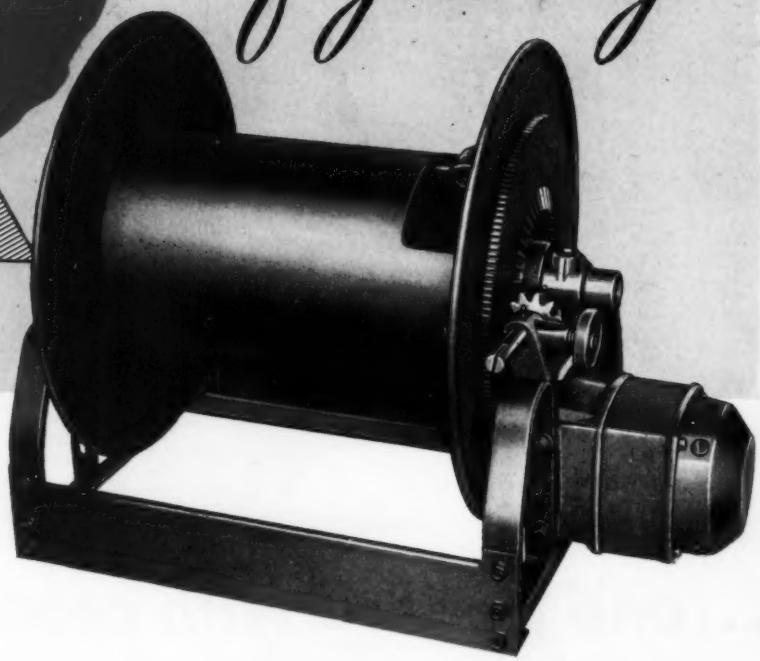
In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. For complete information, have your Midwestern dealer show you our complete line. A letter to the factory will also bring you literature and material samples for your inspection.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN SAFETY MFG. CO. Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Safety Coats**

FIRST *in fire fighting*



Strong, Swift, Sure,
Precision Built
Underwriters' Approved
Competitively Priced

THE RUGGED STRENGTH of these great Fire Fighting Reels is more than a match for the most severe service to which they can be subjected.

FRAMES are of channel steel, end-welded and angle-braced—extra strong, yet flexible enough to absorb road shocks.

DRUMS are of heavy 11-gauge steel, smooth-seamed and arc-welded for perfect roundness, and reinforced with a series of heavy steel rods.

HIGH PRESSURE SWING JOINTS and piping will withstand pressures in excess of 1,000 pounds. Standard swing joints and piping will withstand pressures up to 1,000 pounds.

GEAR-TO-GEAR DRIVE assures smooth, positive power transmission—eliminates adjustment and alignment problems of chain drives.

EXPLOSION PROOF MOTORS are of exclusive design — compact, powerful, efficient — Underwriters' Approved for all electrical systems.

ALSO DUAL-REEL, starter-motor, and hand-wind models — with or without hose rollers. Distributors in principal cities. Complete catalog on request. Write, wire or phone.

ardmore products
Division of Amco Corporation

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Chicago 12
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Beautiful!

...and packed with practical, original *American* features that increase your fire-fighting effectiveness!

At American, you can select from a wide range of standard or custom-built models tailored to suit the needs of your community. Select the make of chassis you prefer and the body design you like best. Choose the Barton-American Pump you wish from a wide range of Midship models —two-stage, four-stage or the *new* single-stage types—or Front-Mounted Pumps with the *only* positive, inter-locking clutch that can't slip and leave you helpless at a fire.

If you're looking for superior performance, look at American's superior features!

Contact your nearest American Representative soon!

American

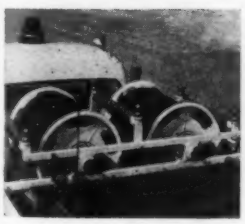
AMERICAN FIRE APPARATUS CO.

FIRE APPARATUS CO.

Main Office: Main Street Road, Battle Creek, Mich. • Plants at: BATTLE CREEK, MICH. • MARSHALLTOWN, IA.

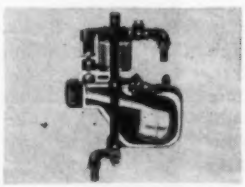
BARTON SUPER-FOG GUN—Famous for both long-range and close-up fog. Effective with normal and/or high-pressure, small or large volume straight streams or fog. Now with *new* refinements!

NEW ENGINE GOVERNOR—An entirely new, superior Barton-American engineered design. It combines pressure regulation and engine speed control . . . instantly idles engine whenever pump for *any reason* loses its pressure.



IMPROVED ELECTRIC REWINDS — Pioneered by American . . . now with new features. Single starting motor. Convenient, quickly adjusted brake control. Superior reel design permits hose expansion under pressure, protects hose at couplings. No elbows —reduces friction.

FROST-PROOF TANK OUTLET—Valve location in wide sump basin prevents possibility of freezing. Strainer baffles prevent swirl—insure fast, steady water flow. Entire valve unit easily removable for repair or tank clean-out.



FAST VACUUM PRIMER — Motor vacuum priming — now improved for 100% faster operation. Trouble-free —no lubrication or adjustments needed for life of unit. Furnished as part of dual priming when required.

You benefit from the finest of plant and testing facilities.

Radio serves vital city departments in Fort Worth

Police, Fire, Utilities, and Civil Defense Functions in Fort Worth, Texas Are G-E Radio Equipped.

City departments radio equipped

The City of Fort Worth is an example of modern city government in action. Major city departments are equipped with two-way radio for instant coordination of operations.

Three systems—one tower

Three separate radio systems are controlled from central Radio Division headquarters, beamed from a single antenna tower. Base station dispatch points spotted throughout the city are in contact with other departments and nearly 300 mobile radio vehicles. Additional transmitters are on standby service.

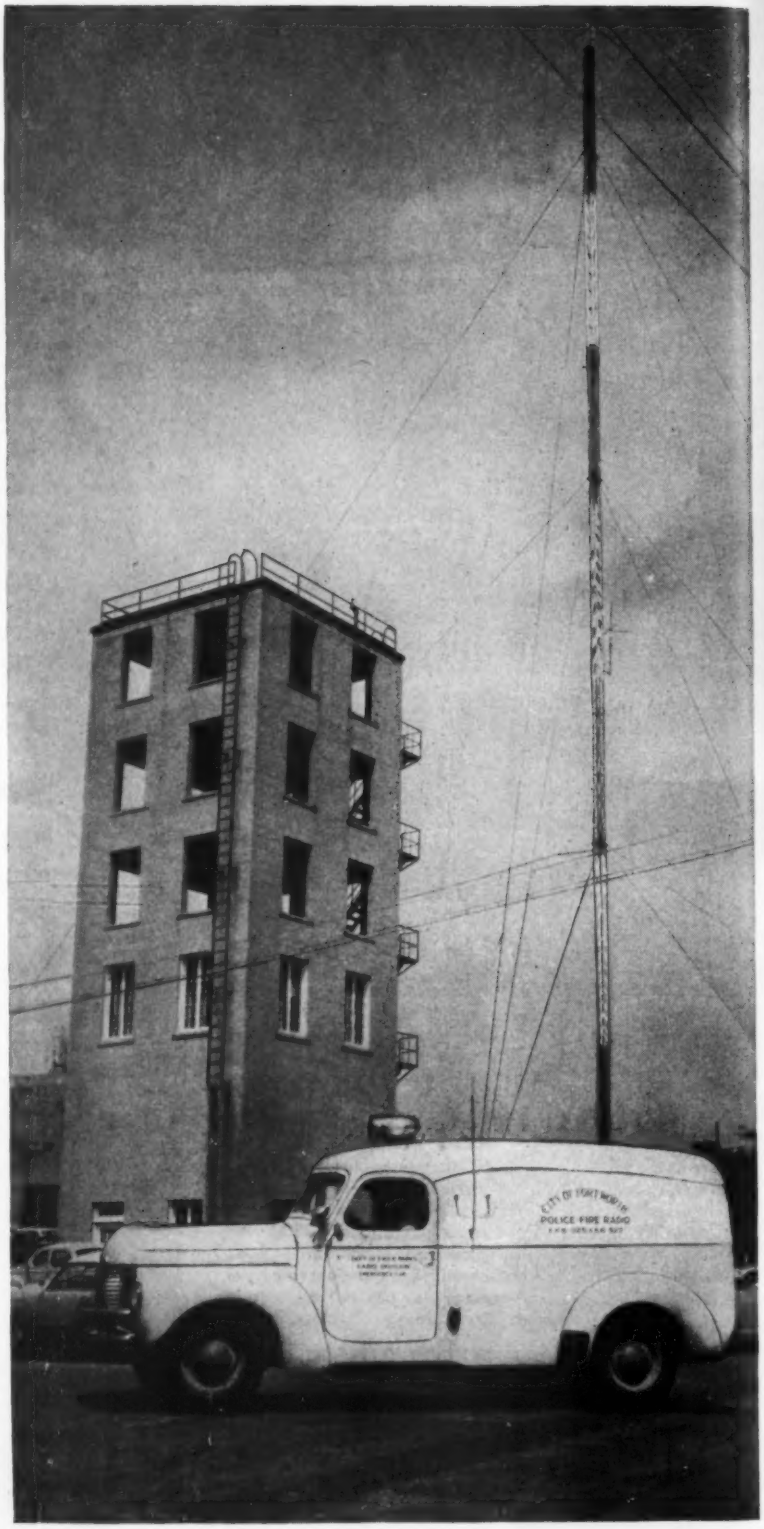
Fort Worth's Radio Division tower also serves as transmission point for radio system of Tarrant County Volunteer Firemen.

Fort Worth's modern Civil Defense communication center, located outside the city, is also equipped with two-way radio to back up and coordinate existing radio systems.

New Progress Line

New Progress Line radio equipment provides rack mounted construction, true plug-in chassis. Exclusive design permits changes in frequency, power, type of reception quickly—at a minimum cost. Let a G-E Communications Counselor analyze your municipality's radio needs, develop an installation based on long range requirements. See him, or write: *General Electric Company, Communication Equipment, Section X59115, Electronics Park, Syracuse, New York.*

2-WAY MOBILE RADIO



18 station transmitters link vital city offices, nearly 300 G-E radio equipped vehicles. Here a Radio Division mobile unit rounds a corner near the Municipal Fire Academy. Antenna tower in background beams separate signals serving all departments.

Progress Is Our Most Important Product

GENERAL ELECTRIC

ROCHESTER, MINNESOTA

chooses the two-fisted efficiency of

JOHN BEAN'S HPV* FIRE-FIGHTER

to help meet a unique fire protection need

Rochester's Mayo Clinic gives the world's best medical attention to some 140,000 patients annually. Rochester must also give these patients — and the many more thousands of relatives and friends who accompany them — the best possible fire protection. That is why they chose the best in fire fighting equipment — a John Bean HPV* Fire-Fighter.

Two independent pump systems, operating separately or simultaneously, give Rochester's John Bean HPV* Fire-Fighter a two-fisted punch. The John Bean High-Pressure Fog system makes instantly available fast acting, easily controlled fog streams, while the Bean Multi-Stage Volume Pump delivers a steady, positive conventional stream under any operating conditions.

You, too, can give your community the best fire fighting protection. Get complete details — write for catalog today.

HPV* — The Fire-Fighter with both High-Pressure Fog and Volume Pumps

JOHN fmc BEAN

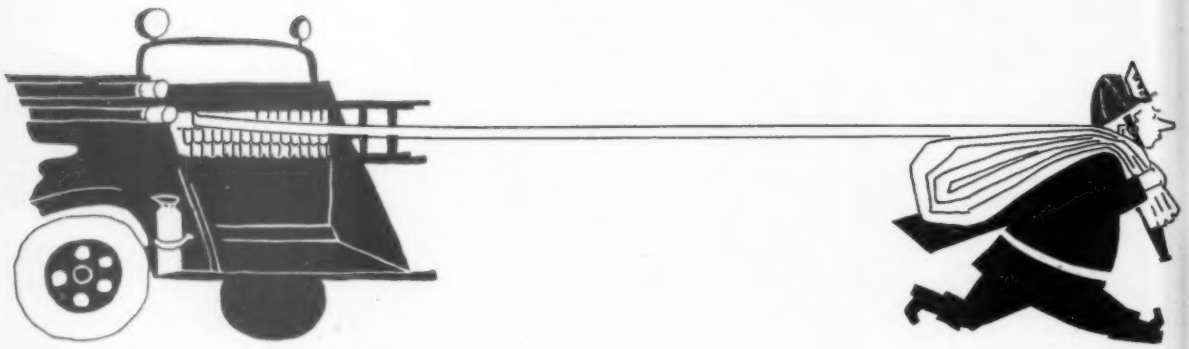
TWO-FISTED FIRE-FIGHTERS

John Bean Division
Dept. 126
Lansing 4, Michigan

John Bean Division
P.O. Box 145
San Jose, California

Can be mounted on most standard truck chassis

A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION



Get to the fire faster -with more hose!

AMERICAN cotton-synthetic jacket hose weighs 18% less, is 27% less bulky and 50% stronger than old-style cotton jacket hose. It has been proved by three years of field service. Why lose time with bulky, hard-to-handle, hose when you can get benefits like these:

CARRY 25% MORE HOSE in the same truck space.

EASIER HANDLING... stays flexible wet or dry, lies flatter, coils better.

UP TO 50% STRONGER... 400 or 600-lb. test.

LONG LIVED—costs you less per foot per year because it lasts longer (much AMERICAN municipal fire hose has been in regular use 25 and 30 years.)

Available in heavy duty, medium weight and light weight jackets, each identified with its woven-in stripe. Every length proof tested with couplings on; test report accompanies shipment. Can be Arcolized to prevent mildew and rot. Order from your dealer or write us now for details.

The American Rubber Manufacturing Co.

AR-33

Factory & General Offices: • 1145 Park Avenue • Oakland 8, California • Phone OLympic 2-0800

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THE NEWEST AND FINEST IN 2-WAY RADIO

. . . with quality and value above all.

The new look—the new sound—now available in the most complete line of precision built, two-way radio models, vibrator or dynamotor powered . . . featuring foolproof 6/12 volt interchangeability, the solution to today's installation problems in mixed fleets of 6 and 12 volt vehicles.

These new **Twin-V** models give you improved communications range, maximum intelligibility through better receiver sensitivity—better circuitry for control of ignition noise, "hash" and other interference—better audio response for clearer, crisper voice messages that get through even under the worst conditions. The new acoustically matched **Twin-V** radiophone speaker and speaker enclosure assure unexcelled voice reproduction. Instantaneous squelch operation reliably blocks out nuisance noise while maintaining maximum sensitivity to consistently receive the weakest usable signals.

Here is equipment designed to new higher performance standards—built to last . . . built to accommodate changing operating conditions, economically and functionally . . . built to more readily accommodate conversion to split-channel conditions. All Motorola units are fully field tested, proved in use, proved for sustained peak performance, proved for minimum maintenance.

with MANY NEW, EXCLUSIVE FEATURES

There is a model designed for each and every application in the 24-54 mc., 144-174 mc., and 450-470 mc. frequency ranges, with a wide selection of transmitter power output ratings to serve your varied communications requirements. Take your choice of compact, economical, vibrator powered models or rugged, long life, dynamotor powered units to serve your specific operational needs.

Get the complete details. Write, phone or wire:

MOTOROLA

2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC.
1501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD. TORONTO, CANADA

Motorola consistently supplies more mobile and portable radio than all others combined.
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease.
"The best costs you less—specify Motorola."

"We prefer hose made with DACRON
REG. U. S. PAT. OFF.
because it's easy to load . . . easy to handle"

says Chief E. P. Feaster, Lincoln, Nebraska, Fire Department

Lightweight and flexible, hose made with "Dacron" gets into action fast—is easy to coil and rack when the job is done. Hose made with "Dacron" also dries fast. It can increase hose-carrying capacity by as much as 50%.

"Our fire department has used hose made with 'Dacron' approximately three years," says Chief Feaster, "and our experience with it in that period of time has been very good. We are satisfied with it in every way and especially like the way it loads on fire trucks, its flexibility in rolling and handling in general."

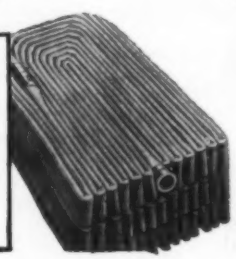
Fire departments across the country are reporting better all-around performance from hose made with "Dacron"*. Used as the load-carrying "filler" cord that reinforces the hose, this Du Pont fiber permits a hose that's light and flexible—yet *stronger* than ordinary hose of the same construction. And "Dacron" resists deterioration from mildew attack.

Du Pont makes "Dacron" polyester fiber and supplies the yarn to hose manufacturers. The combination of the unusual properties of "Dacron" plus hose manufacturers' skill has resulted in a superior fire hose. Hose made with "Dacron" is produced by all leading fire-hose manufacturers. Its superiority has been proved by years of field testing. The next time *you* need hose, be sure it's made with "Dacron". E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

**"Dacron" is Du Pont's registered trademark for its polyester fiber.*

ADVANTAGES OF FIRE HOSE MADE WITH "DACRON":

- Lighter
- Stronger
- More flexible
- Dries faster
- Cuts loading time
- Saves space



DACRON
POLYESTER FIBER

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

PROVED in SERVICE

WARD LaFRANCE

Fireball Special

Actual fire fighting is the best test of apparatus and equipment.

Now, proven in service, the new Ward LaFrance low cost FIREBALL SPECIALS have been enthusiastically praised by firemen who have used them during the past year.

THE FIREBALL SPECIAL is particularly suited to suburban communities and rural fire companies. This truck is specifically engineered and designed for fire fighting. It will stand up under hard service and long pumping assignments. Its Chrysler Firepower 183 HP engine, deep heat-treated alloy steel frame, 500* GPM pump, 500 gallon booster tank and hundreds of other features insure quick starting, fast, flexible operation, generous pumping power and a long, service-free life of fire fighting. Investigate this advanced, modern fire truck for your community protection today!

*750 GPM Pump optional extra

WARD LaFRANCE

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Fire Apparatus Manufacturers for over 37 Years

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Tel. CYpress 2-3300

EXPORT: Ward LaFrance International, Inc.,
Elmira, N.Y., U.S.A.
Cable Address: "Wardtruck"

His life might have been saved—*if* he heard that last order! Audio Hailer reduces the hazards of fire fighting. It enables Fire Chiefs to give instant warnings—with power to cut through the racket! Ask your fire supply dealer for a demonstration. Or write for brochure.

AUDIO Hailer

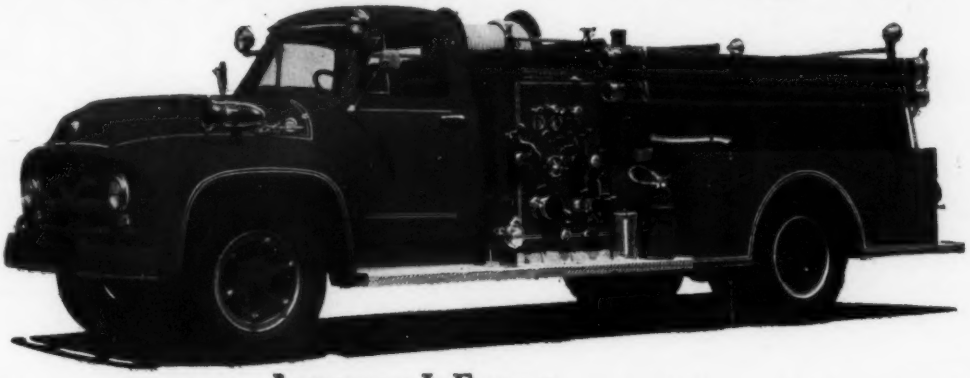
AMPLIFIES YOUR VOICE 1000 TIMES • PORTABLE • SELF-CONTAINED

LIGHT-WEIGHT • BATTERY OPERATED • WEATHER-PROOF

AUDIO EQUIPMENT CO., Inc., 805 Middle Neck Road, Great Neck, N. Y.

Yes Sir! AMERICAN LaFRANCE does build

Suburban and Rural Fire Fighters



You can get AMERICAN LaFRANCE quality equipment mounted on your preferred commercial chassis. Some important features are:

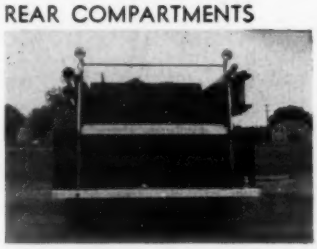
LARGE CAPACITY HOSE BODY

Hose body is heavy gauge cold drawn steel with capacity for 1900 feet 2-1/2 inch, plus 400 feet 1-1/2 inch hose with 300 gallon water tank, or 1500 feet of 2-1/2 inch plus 400 feet of 1-1/2 inch hose with 500 gallon water tank.

IMPROVED WATER TANK CONSTRUCTION

Water tanks available in 300 gal., 500 gal., 750 gal., or 1000 gal. capacity on specification. New design removable top. A large outlet sump to make entire tank capacity available for fire fighting. Large fill opening and non-spill venting. Better load distribution on chassis for greater operating stability.

REAR COMPARTMENTS



Three rear compartments are provided, one open and two enclosed. The enclosed compartments will house a portable pump or generator.

LARGE SIDE COMPARTMENTS

Four large compartments, two each side of body are amply large to house inhalators and fresh air masks. Compartments are optional at small cost.

HOSE REEL

One reel with capacity for 200 feet 1 inch high pressure hose, manual rewind type is standard. Extra reel and electric rewind feature available on specification. 150 feet 3/4 inch 800 pound test hose furnished standard.

WIDE RANGE IN PUMP CAPACITIES

American LaFrance 2-stage centrifugal pumps available in N. B. F. U. and I. A. F. C. Class A rating with capacities according to chassis preferred. Discharge pressures up to 600 p.s.i. available without extra stage or separate pump. Bronze impellers on stainless steel shaft with replaceable seal rings in housing. Positive change-over valve.

AMERICAN LaFRANCE CORPORATION

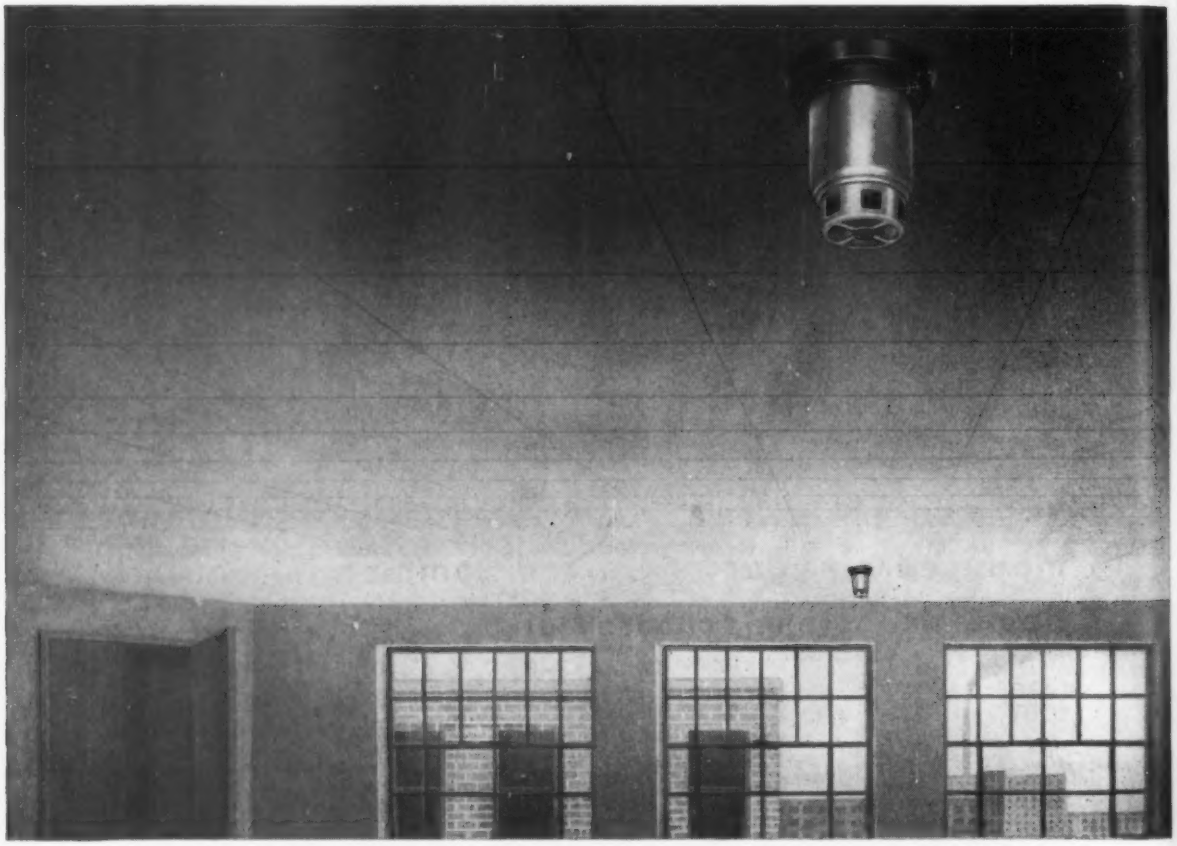
ELMIRA, NEW YORK, U. S. A.

LaFRANCE FIRE ENGINE — FOAMITE LIMITED

TORONTO, 9, ONTARIO, CANADA

New, radio-active, automatic fire guard!

C-O-TWO PRE-DETECTOR SYSTEM



Each pre-detector head protects up to 3,600 square feet of area... harmless radio-active element utilizing ionization chamber principle quickly detects all forms of fire... requires only simple two-wire circuit and insignificant wall space for controls.

This completely new and positive means of spotting fire is just what you've always needed and wanted . . . detects in the earliest stage, invisible combustion gases, visible smoke, slow smoldering, as well as open flame. The C-O-TWO Pre-Detector System is simple to install, extremely economical to maintain and doesn't depend on thick smoke or heat for actuation.

As many pre-detector heads as necessary can be connected together in a single circuit and up to 16 separate circuits or spaces handled by one system. With a single circuit the pre-detector heads are connected directly to the fire indicating cabinet, while with multiple circuits the pre-detector heads are first connected to one or more space indicating cabinets capable of visually showing by number the exact location of the fire. Relays perform such functions as sounding alarms, closing fire doors, shutting down ventilation and releasing fire extinguishing systems.

The C-O-TWO Pre-Detector System has been subjected to extensive testing and carries Underwriters' Laboratories, Inc. listing, as well as Factory Mutual Laboratories approval. Proven pilot installations have been made in such diversified properties as a television station, an electric power company network analyzer room, a railroad signal tower, an airline flight training equipment room and the offices of an insurance company.

Don't take unnecessary chances any longer . . . the extensive fire protection experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Get complete facts about this new C-O-TWO Pre-Detector System today!

Pyrene

PYRENE — C-O-TWO

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C-O-TWO

COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

'WAY UP

GOES THE EFFICIENCY RATING...

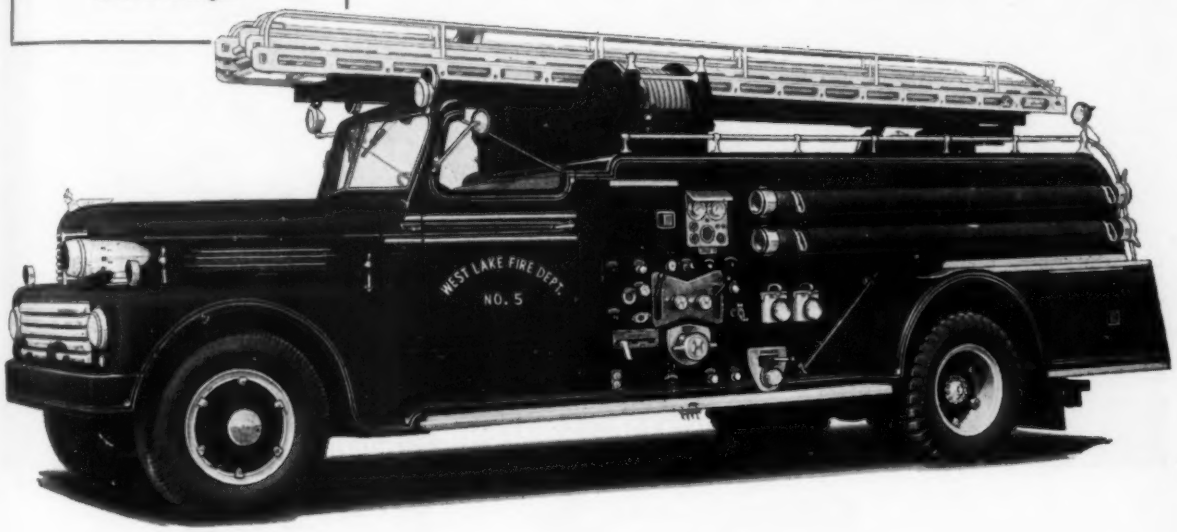
when it's a

HOWE PUMPER

equipped with

Junior Aerial Ladder

Electrically Operated Ladder
Manual Controls for Emergency Use
50 or 65 ft. lengths



HOWE PUMPERS equipped with junior aerial ladders are wise investments. For use as a water tower to mount a deluge nozzle and for rescue work, the sturdy junior aerial ladder is the answer to many an otherwise baffling problem in small communities.

The progressive West Lake Fire Department, Erie, Pennsylvania, (which ordered its first truck from HOWE upon the department's organization in 1937), owns the new pumper shown—a custom-built Howe DEFENDER with 260 H.P. Waukesha engine. The ladder can be operated at the same time as the 750 GPM pump. Alternator is a 100 ampere Leece-Neville unit with 250 watt transformer and two 110 volt outlets. A 200 gallon booster tank and ample running board compartments are among the features. Note the compact overall assembly of this pumper.

Here is a fire truck engineered for efficiency. Before YOU buy . . . phone, write or wire HOWE!

HOWE

Member FAM (Fire Apparatus Manufacturers Association)

HOWE

"dependable fire apparatus since 1872"

FIRE APPARATUS COMPANY

Dept. FE11, 1400 W. 22nd St., Anderson, Ind., U. S. A.

SQUEEZES PAST OBSTRUCTIONS

E & J RESUSCITATOR - INHALATOR - ASPIRATOR

E&J RESUSCITATOR • ASPIRATOR • INHALATOR

. . . first name in Resuscitators

ACCEPTED COUNCIL ON PHYSICAL MEDICINE and REHABILITATION AMERICAN MEDICAL ASSOCIATION

When partial obstructions will not yield to aspiration, or when the air passages are swollen almost shut, the exclusive E & J feature "Precision Flow Control" assumes life-saving importance in emergency rescue treatment.
With it the operator can quickly find just the exact flow of oxygen that will squeeze past obstructions short of complete blockage to provide full inhalation and exhalation *at a slow but life-saving rate!*

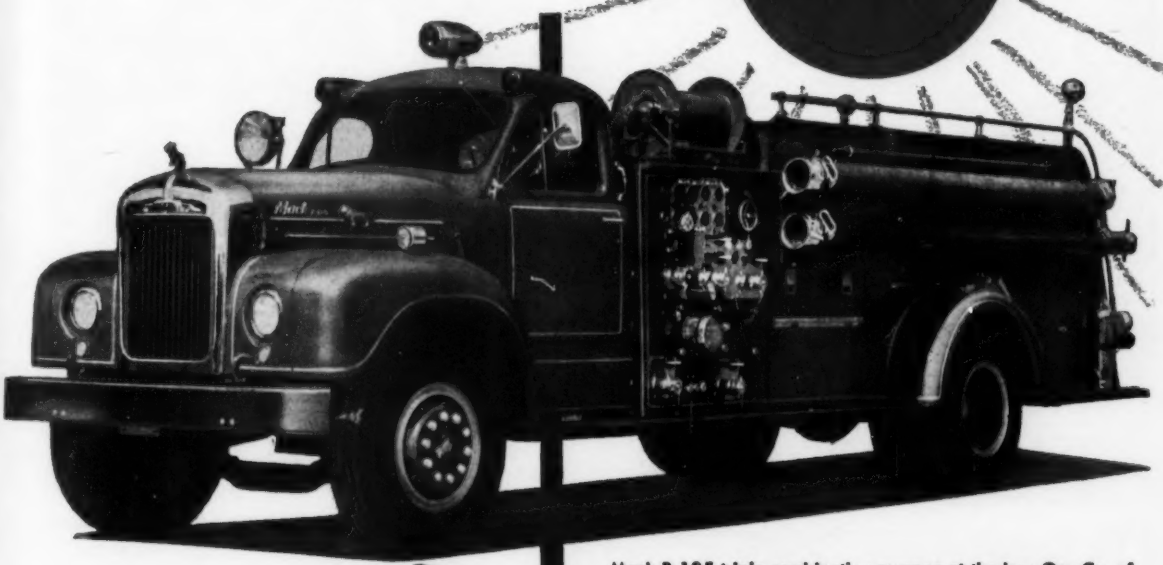
FIND OUT MORE ABOUT THIS VITAL E & J FEATURE . . .
Data and demonstration without obligation.
Write to Dept. *544-7* at address below.

E&J

E&J MANUFACTURING COMPANY

100 E. Graham Place, Burbank, California

in the land of the midnight sun



Mack B-125 triple combination pumper at the Iron Ore Co. of Canada operations, Schefferville, Quebec, northernmost incorporated town in Canada. Pumper is equipped with pump pans to retain heat.

Mack PUMPER PROTECTS HUGE IRON ORE MINE

Even under weather conditions that drop winter temperatures to 65 degrees below zero, this Mack triple combination pumper is relied upon for dependable operation whenever the need arises. It protects structures on the Iron Ore Company of Canada property in Northern Quebec far north of the timber line.

This pumper is literally a self-contained fire department in itself. In addition to a 900-gallon (U.S.) water tank, it is equipped with two hose reels each carrying 150′ of ¾″ hose, and 2000′ of 2½″ hose and 500′ of 1½″ hose in the body.

Built by Mack to live up to Mack's high performance standards, this 1250 gpm pumper, like every piece of Mack apparatus, is the product of the most complete manufacturing facilities in the industry—a product of complete control over the construction of all components. It is an example of the way Mack can meet any fire-fighting apparatus need.

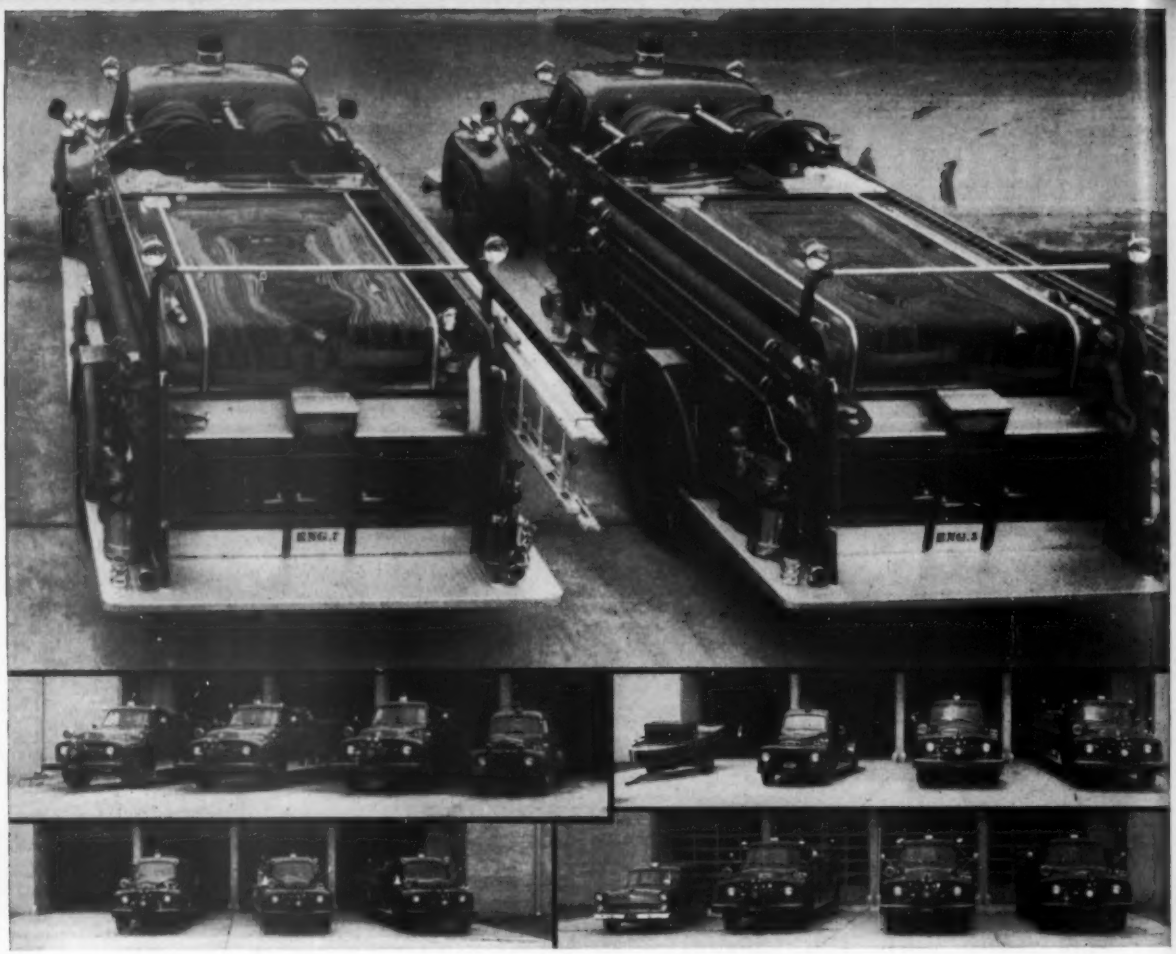
To find out how "Built by Mack" can assure *you* of getting outstanding performance and long-lived dependability, contact your Mack representative or distributor today.

MACK MANUFACTURING CORPORATION

Empire State Building, New York 1, N. Y.

3579

TRIPLE COMBINATION PUMPERS—500 to 1250 GPM . . . SQUAD CARS AND HOSE WAGONS . . . 65′, 75′ and 85′ AERIALS . . . COMBINATION LADDER TRUCKS



Lightweight dacron hose saves space, strain, time for this fire department

Poised for prompt action! That's the immediate idea conveyed by these sleek trucks of Sedgewick County, Kansas, fire department. And an important contribution to fast action is the compact hose in those truck beds. It is Quaker's Dacron hose . . . flexible for rapid transfer from truck to fire . . . lightweight for fast, strain-free handling.

These are not the only reasons why 21,000 feet of this Dacron hose is practically standard equipment at all four of the county's fire stations. Another reason is the 50% greater pressure it withstands compared to conventional hose. Another is its rugged resistance to heat, chemicals, abrasion. Another reason is that it folds flat permitting greater footage with less bulk in truck space. Still another is its quick drying feature due to the super strong Dacron filler thread, combined with the double jacket of cotton warp thread surrounds non-porous rubber tube.

Our Delaware-Victor brand is rated for 600 pounds and our Bond-Battleship brand for 400 pounds. Both are factory tested under severe hydrostatic pressures far more rugged than the most severe use they would get in action.

We also manufacture a complete line of water and chemical fire hose for every municipal and industrial requirement. Write for free folder and name of nearest distributor equipped to serve you locally.

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H.K. PORTER COMPANY, INC.

QUAKER RUBBER CORPORATION
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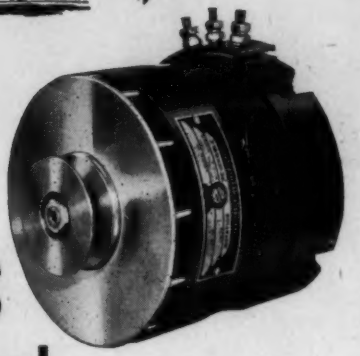
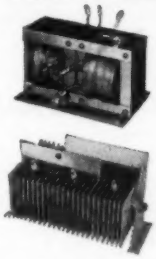


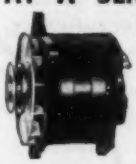
AC-DC ALTERNATOR SYSTEMS Guarantee the Current You Need to Get to the Fire... and to Fight the Fire

110 VOLTS FOR POWER TOOLS, LIGHTS



Installation of a Leece-Neville Transformer and 110 volt Rectifier with your L-N Alternator will provide up to 1200 watts of 110 volt d.c. current for spot and flood lights, half-inch drill, power saw etc. Send for special bulletin.

A GENUINE L-N ALTERNATOR AT A SENSATIONAL LOW PRICE



For loads up to 60 amps at 6 volts or 50 amps at 12 volts, see the new L-N Standard Alternator System that costs *less* than "extra" output d.c. generator.

Sirens, lights and 2-way radio make a heavy electrical load that can drain the battery. Leece-Neville Heavy-Duty Alternators, which replace conventional d.c. generators, have the capacity to carry the load: up to 95 amperes for 6 volt systems; to 180 amperes for 12 volt; to 100 amperes for 24 volt.

At the fire, L-N Alternators produce up to 40 amperes with the engine idling, keep batteries "up" and permit use of 2-way radio.

THE ORIGINAL AC-DC GENERATING SYSTEM—RECOGNIZED EVERYWHERE

Since 1946 more and more Fire Departments have made L-N Alternators standard. Some of these are Atlanta, Boston, Buffalo, Chicago, Cleveland, Dallas, Denver, Detroit, Los Angeles, Miami, Montreal, New York, Pittsburgh, Toronto, and many others, large and small.

Be sure to specify Leece-Neville on new apparatus and in your modernization program. For all the facts, and name of your L-N Distributor, write The Leece-Neville Company, Cleveland 3, Ohio. *Distributors in principal cities . . . Service Stations everywhere.*

YOU CAN RELY ON Leece-Neville

Automotive Electric Equipment Since 1909

TRUCK • BUS • DIESEL • INDUSTRIAL • PASSENGER • RAILROAD • MARINE • OFF HIGHWAY

ALTERNATOR SYSTEMS

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SMALL MOTORS

Performance

24 YEARS OF UNEXCELLED SERVICE IS REASON ENOUGH FOR—

AUDUBON, NEW JERSEY TO SELECT ANOTHER DEPENDABLE

MAXIM PUMPER

CHOICE — not chance — brings men of the fire service to MAXIM! We engineer and build a complete line of fire apparatus including aerials up to 100 feet and over.

We Welcome Your Inquiry

MAXIM MOTOR COMPANY

MIDDLEBORO . . . . . MASSACHUSETTS

long — long after the purchase price has been forgotten—

you'll be glad you bought a—

MAXIM

TRAGEDY COMES TO LEXINGTON. This tank truck jackknifed, tipped over on its side and traveled about 100 feet in that position. Sparks showered up from beneath the truck and it blew up. The driver was killed.

Rockwood FOAM puts out tank truck fire in minutes!

Here is the true story from the pages of the Boston Globe and eye-witnesses

It was Thursday, March 17, 1955, 9:30 a.m. A tank truck was stopping at a traffic light on the Concord Turnpike in Lexington, Massachusetts. Suddenly, it jackknifed. There was a puff of smoke, then an explosion. The driver was hurled onto the roadway. His clothes were aflame and he collapsed. Onlookers said flames reached 200 feet in the air.

Minutes later, in answer to a telephone alarm, Engine 2 of the East Lexington Station was on the scene. Flames whipped by winds and fed by several thousand gallons of gasoline were sweeping across the road and scorching the surrounding trees. Black smoke billowed into the air.

Roy A. Cook, Chief Engineer, Lexington Fire Department, ordered Engine 2, which carries 500 gallons of water, to hold back the flames until Engine 1, carrying Rockwood FOAM, could be put into action.

Soon Engine 1, equipped with a 1½" Rockwood FOAM eductor plus the new type SG-60 FOAM nozzle with adapter for straight stream and FogFOAM, was at the scene. *With this Rockwood equipment and FOAM, Engine 1 had the fire completely under control in fifteen minutes; completely extinguished in forty-five minutes.*

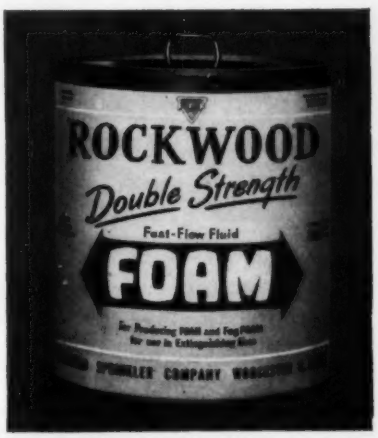
Does your city have this protection? With ever-increasing traffic, more filling stations and more tank trucks on the road, the frequency of gasoline fires is on the increase. When tragedy came to Lexington, headlines told a grim story. But a major catastrophe was prevented because the Lexington Fire Department was prepared with Rockwood products. Every Lexington Fire Department Truck is equipped with Rockwood FOAM.

Be prepared. Put this great fire fighter to work for you. Specify Rockwood Automatic FOAM Proportioning Systems, Rockwood FogFOAM nozzles and FOAM liquid when you order a fire truck.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Distributors in all principal cities



ROCKWOOD DOUBLE-STRENGTH FOAM LIQUID, 3 parts mixed with 97 parts water, forms a solid FOAM blanket that quickly re-seals itself. Available in 5 gallon drums.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
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Please send me your illustrated booklet on Rockwood fire fighting products.

Name.....
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Street.....
City.....*Zone*....*State*.....

BOOKS

Recognized by the Fire Service as Standard

Every Fire Fighter Should Have

FIRE SERVICE RESCUE MANUAL

by JOE MAHAFFEY

Designed to serve as instructional material for firemen, particularly those attached to rescue squads, it is a gold-mine of practical, up-to-date, "how-to-do-it" information covering all phases of fire service activities relating to the saving of human life—first aid, manual and mechanical administration of artificial respiration, transportation of injured, use and care of rescue equipment, and rescue operations in general.

Fire Chiefs who realize the importance of developing their rescue work to top efficiency, as most fire departments are doing these days, would do well to place a copy of this book in the hands of each of their men concerned with this type of work.

62 pages, illustrated **$1.25 Postpaid**

FIRE SERVICE LADDERS

by ROI B. WOOLLEY

This book is without question the most complete, practical and authoritative material ever made available to the fire service on every phase of ladder use, handling and care. It is not only brimful of instructive illustrations but *each operation is fully explained* in easy-to-understand detail. The author is Assistant Editor of FIRE ENGINEERING, a former chief and a nationally recognized authority on fire fighting.

Every fire chief, instructor and training school should have this book, and a copy certainly belongs in each fire station.

108 pages, 319 illustrations **$2.00 Postpaid**

FIRE SERVICE HYDRAULICS

by FRED SHEPPERD, *Editorial Director* of FIRE ENGINEERING

Covers thoroughly and authoritatively the subject of hydraulics as it pertains to every phase of fire-fighting—in simpler, more understandable and more complete form than ever. Not only that, it embraces, as well, many important angles that have never before been covered anywhere. There are several new formulas, originated by Mr. Shepperd, and even old ones have been simplified or revised for greater accuracy.

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by FRED SHEPPERD

Published in response to numerous requests from fire department officers and men working for advancement, this new book embraces the famous "Promotional Study Course" which ran serially in FIRE ENGINEERING and proved to be so tremendously popular. Covering in chapter lessons most of the important phases of fire protection promotional study —mainly in questions and answers form—all of it is in the concise style generally used and preferred by civil service examiners.

To fire chiefs and other officials responsible for preparing examinations, this book will be found most helpful. And it is a mighty good reason, too, why fire officers and men should find it of inestimable value in studying for advancement.

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THE FIRE CHIEF'S HANDBOOK

by FRED SHEPPERD

in Collaboration with the Educational Committee of the International Association of Fire Chiefs

There have been books on fire-fighting, but never anything so complete and authoritative as "Fire Chief's Handbook." This book, a gold-mine of practical, helpful data, gives a reliable answer to almost every question that might come up in modern fire-fighting practice.

Used by fire chiefs everywhere as a reference guide, it has become known as the bible of the fire-fighting profession. Ambitious fire department officers and men, too, have found this book extremely helpful in preparing for promotion.

485 pages, profusely illustrated **$4.00 Postpaid**

Order Your Copies Now! Your Money Back If Not Fully Satisfied Within 10 Days

Book Department, FIRE ENGINEERING, 305 East 45th Street, New York 17, N. Y.

Please send me the following books:

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"Fire Chief's Handbook" at $4 ☐

Check, M.O. or City form enclosed (No C.O.D.'s)

Name .....

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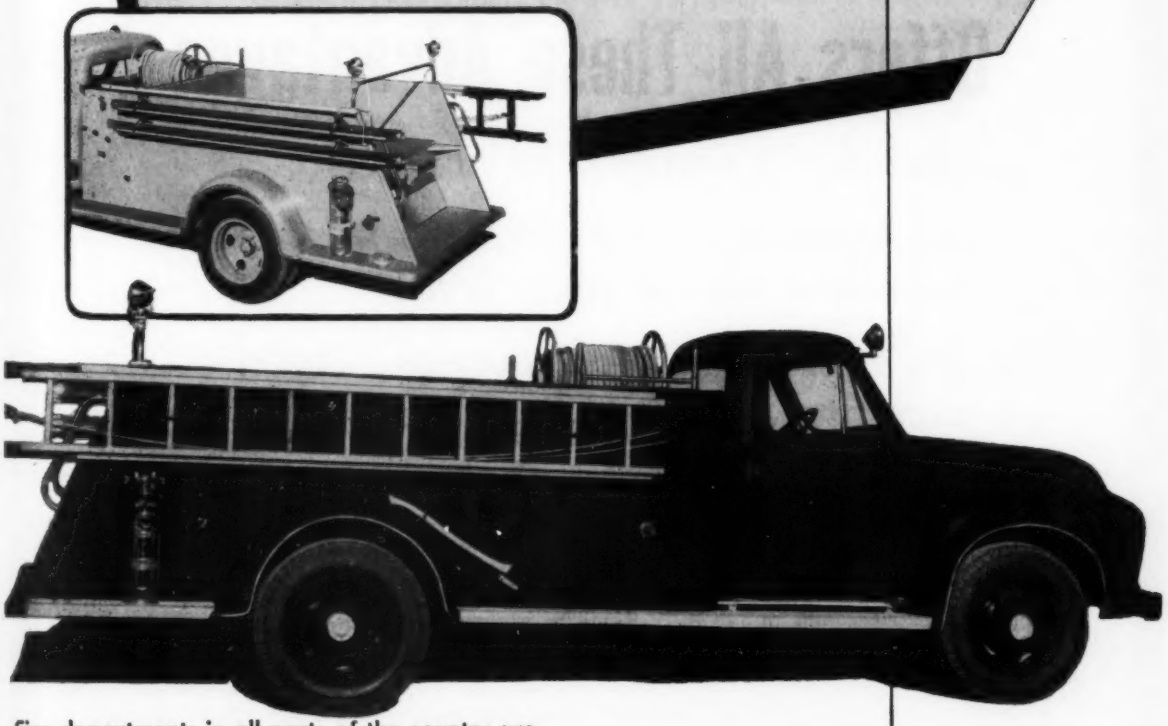
A DEPENDABLE TANKER with a reasonable price tag!



Fire departments in all parts of the country are praising the Boardman Tanker for its dependable rural service. This tanker is equipped with a 500 gallon tank (standard model) and the famous Waterous Pump. There's a combination that will really deliver—and at a pressure, too.

In addition, the Boardman Tanker fights grass and other running fires while in motion—a big factor in rural fire fighting.

When it comes to money, the Boardman Tanker really shines. Its low initial cost results from the use of a standard truck chassis. The make and model is up to you. This standard chassis also means lower repair and maintenance cost.

Let Boardman send you complete information, including literature and prices. There's no obligation, and you'll have all the facts. Write today sure!

THE BOARDMAN CO.
OKLAHOMA CITY
1401 S.W. 11TH
BRANCH OFFICE: TULSA, OKLAHOMA

A FEW CHOICE DEALER TERRITORIES AVAILABLE!

Only the GAMEWELL Telegraph Fire Alarm System Offers All These Advantages

...Specifically designed for fire service

...It's automatic—and complete—from fire box to central office to enginehouse

...It's direct... simple to operate... precise... accurate... never misunderstood

The Municipal telegraph fire alarm system says one thing only — FIRE — permitting no uncertainty as to the nature of the emergency and its location.

It's on the job 24 hours a day protecting life and property inside schools, hospitals, private buildings, industrials, and public institutions by means of Master-box-connected interior systems.

It is simple to operate — does not handicap the excited person, or the stranger to the community, in reporting an alarm of fire. It sounds the alarm — automatically turns on lights — opens firehouse doors — operates traffic sirens and lights and alerts personnel.

And best of all . . . the Telegraph Fire Alarm System is under the control and supervision of the Fire Chief whose department is devoted to the task of providing the best and most dependable fire protection for his community on a round-the-clock basis.

GAMEWELL®

THE GAMEWELL COMPANY NEWTON UPPER FALLS, MASSACHUSETTS

FIRE ENGINEERING

NOVEMBER, 1955 VOL. 108, NO. 11

With the Editor

Saga of the Volunteers

Twice within a few weeks, disaster in the form of high winds and rain has brought death and destruction to the northeastern areas of the nation.

Floods tore away dams. Bridges disintegrated. Highways vanished under tons of water. Mill and mercantile buildings toppled into the torrents, along with countless houses, many of them bearing their occupants to death. There was no municipal water, no telephone service, no gas, no electricity. And in a few places, to top it all, there was fire, uncontrolled.

Then came the help. First of all, came the firemen; for the most part, volunteers. Not only fire forces in the stricken cities, towns and villages went into action, but also from outside the areas most affected.

The Army and Air Force, with helicopters; the Coast Guard and Navy with boats and "duks"; the Salvation Army and Red Cross with canteens, medical supplies, and Civilian Defense volunteers. All pitched in. All did their stuff. But into the thick of it, where the going was worst, went the volunteers.

In cities they reinforced exhausted professional fire fighters. They replaced their fellow volunteers in hamlet and town. They drove through black night, rain drenched, over strange and treacherous roads and bridges. Some of them saw their own firehouses engulfed in the floods. Others were away fighting the torrents, rescuing helpless victims, while their own homes became prey to the rising waters. Still others saw their mates trapped in the muddy waters, while a few saw their apparatus wrecked by the raging torrents.

But they carried on, snatching catnaps when they could; wringing out their soaked clothing; dodging death by the hour.

Reward? There was no thought of it. Glory? There was too much to be done, in too little time to think of it. The poor people in trouble, wet, bedraggled, huddled on rooftops; clutching desperately to debris, to trees in swirling currents—"heck, they're our people," is the way one drenched volunteer put it. And they went after the victims and got them.

They didn't have to do it. After all, they were only volunteers. Everybody expects the regular, paid, professional fire fighters to measure up. It's their job! And after all, for the most part, there was no fire. Just sliding, slipping through the muddy waters, overhauling sodden wreckage that once were homes; climbing slippery roofs; searching dark, water-choked basements for the missing, then frequently having to dig them out of the silt and debris and identify them.

Hungry — and at first, little or no hot food. Thirsty—and no potable water handy. Tired—too exhausted to rest, as one fire fighter expressed it. But they kept on. They turned their own fire stations, food and clothing even, over to the homeless, the bewildered and bereft. And when the angry waters subsided, they went at it to clean up. They washed and hauled away the filthy deposits; they dewatered the waterlogged cellars. They patched up their worn equipment as best they could to prepare for the post-flood fires that were sure to come. And not content with all this, they joined up with their indefatigable compatriots in the almost hopeless task of rehabilitation and reconstruction, which nearly every community in the afflicted areas faced.

Yes indeed, the volunteer firemen were the unsung heroes of these disasters. In every town and village they responded quickly and stayed to the finish. They worked efficiently. In most cases they were first on the scene. They served without benefit of publicity and with little hope of reward and reparation. In many cases, equipment of which they were proud, and which they procured through their own endeavors and funds, was badly damaged, if not ruined. Much of it was lost, swept away, or wrecked in action. Several volunteer firehouses were virtually washed out of existence. How can anyone recompense these unselfish heroes!

It would seem that when the total damage is added up, and the sums are set aside for the vast, necessary rehabilitation, there should be included provision for restitution of personal and department property damaged or lost by these volunteers during their service to the public.

Fred Shepard

Volunteers Do Yeoman Service at Connecticut Floods

Fire Services Suffers Lost Stations and Equipment . . . Save Hundreds During August Emergency Period

A SPECIAL FIRE ENGINEERING REPORT

Editor's Note: **Last month we reported another phase of fire service operations during the devastating, costly flood of August 18-21. That dealt with the work of New York State fire forces where inter and intra-county mutual aid, with State assistance, paid dividends.**

Of much greater significance, however, was the operation of Connecticut's firemen during the same emergency period. Connecticut bore the brunt of the catastrophe, including the worst fires. Its fire service took the most punishment, but accomplished the greatest results in saving of lives and property.

This is a report of some of those operations, based upon information furnished by chiefs of the area themselves. To all who so kindly cooperated, our grateful appreciation. To those whose reports could not be included herein, our regrets, and assurances that eventually their accounts will find their way into print.

THE Town of Putnam, Conn., had the dubious distinction of suffering the greatest loss by fire during the flood of any of the New England towns afflicted during the disaster of August 19-20.

The City of Putnam (10,000 pop.) in the township of that name, suffered two major fires in the area, with fire losses running into the millions. Industrial and business flood and fire damage to the town is estimated in excess of $20 million; public property at another $7 million.

Putnam has a volunteer fire department, commanded by Chief George Harper. On Friday, August 19, with all other volunteer fire departments in eastern Connecticut, Putnam, was put on an air alert.

Somewhere between 10 A.M. and 11 A.M. on that day, fire broke out in what is known as the Bloom Mills, the lessee being the Metal Selling Corp. This was a smaller companion plant to that of the New England Chemical Works, which opened in Putnam during World War II and has been thriving on government contracts. It produces magnesium which, as fire fighters know, produces explosions when burning in the presence of moisture. The metals plant produced cadmium by removing it from the river water by electrolytic process.

According to some reports, there were twenty tons of magnesium involved in the fire, which engulfed both plants and treated the already flood-stricken inhabitants to an awesome display of pyrotechnics as the metals continued to explode through the night of the 19th and morning of the 20th.

The cause of this fire is undisclosed. One report is that boilers exploded when flood waters hit them. However, the fire is definitely attributed to the flood. Whatever the cause, the sprawling buildings, including the original old two story mill of stone, were soon completely involved by fire.

There was little the Putnam firemen could do except try to cover any exposures which they could reach without being swamped by the raging waters. The river had come up very fast and cut the City of Putnam in two. Water, power and light were cut. It was believed all bridges had been washed out, although one was later found intact, under many feet of silt and debris. Three of the fire houses in the area were damaged by the raging waters, one heavily.

The entire Sellers plant installation was completely destroyed, the exploding magnesium making it a very spectacular blaze and adding to the fears of the populace. Fortunately, no one was killed or seriously injured in this incident.

Second Major Fire

The second major fire to strike the area occurred late Saturday afternoon, the 20th, and raged out of control all that night with fire fighters greatly hampered in battling the blaze.

The second conflagration involved two large mills, located side by side, the Uncas Finishing Co. and the Putnam Finishing Co. It is said about 40,000 gallons of fuel oil and some 20,000 gallons of gasoline were stored in the cellars, although it hardly seems possible that this would have been permitted.

A warehouse approximately 200 x 150 feet, containing about three-quarters of a million dollars worth of copper print rolls, was destroyed.

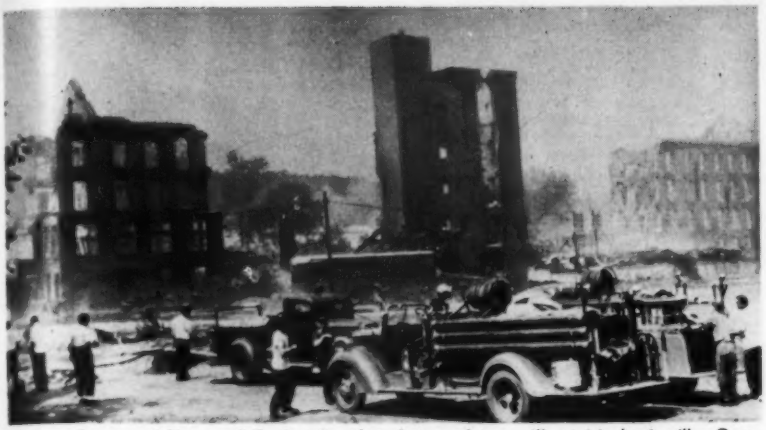
The buildings were surrounded on three sides by swift-moving flood waters. Efforts of firemen to reach the burning structures were largely unavailing. Attempts to fight the blaze by lowering men from helicopters failed when the men were forced to retreat, leaving much of their equipment, because of the heat. One helicopter crashed in this action. All available boats were pressed into service to get men and equipment up to battle the fire.

Connecticut fire teams from over a wide area responded to the calls for aid, many of them becoming mired in the mud along the river bank. All this fire force response to the Mechanicville area was by mutual aid towns in the eastern Connecticut group. One of the ladder units responding to the mutual aid call was from the City of Danielson, which assisted in the rescue of some 50 people.

Bulldozers were employed to dig out roads that blocked firefighters but it was a long time before heavy equipment

Waterbury Republican-American photo

Almost crushed like an eggshell was the 85-foot aerial ladder truck of Company 3, Waterbury, Conn., Fire Department, while firemen were engaged in rescue work during height of flood that struck that Connecticut city on August 19. The truck was crushed by falling debris at the corner of North Riverside and Summit Streets, in the Brooklyn District, worst hit by the raging waters. The aerial and ground ladders were a complete loss while the truck itself became completely submerged by floor waters.



Volunteer firemen picking up following fire that destroyed two mills at Mechanicsville, Conn., on August 20 during height of flood that swept the northeast section of the country. Damage was estimated at $5,800,000.

could get near the blazing plant. The major part of the warehouse involving all of the copper print rolls was saved by excellent fire fighting on the part of the volunteer mutual aid teams, using portable pumps and 1½-inch hose with 1½-inch fog nozzles. Some of these portable pumps were said to have been flown in by the helicopters. They assisted in the removal of some 40 of 300 persons marooned in a section of the town, cut off by rising waters. Firemen aided in these and other rescues, when not engaged in combating the fires.

Aid Pours Into Putnam

As the magnitude of the disaster that had struck the Putnam area became manifest, additional aid poured in. On Sunday, the 21st, nine pieces of apparatus with approximately 85 men were sent in from eastern Connecticut towns. Tolland County sent in 100 men with apparatus and New London County dispatched 100 men with equipment. All of these counties maintain organized mutual aid set-ups.

It should be remembered that the wild flood waters had rendered most of the water supply plants inoperative; there was no gas or electricity for some time; the sewage system was out of commission and wire communications were practically wiped out.

Fire department radio was the only means of reliable communication in this entire Putnam area, with the three county radio systems operating. The main base station was at Brooklyn, Conn. By means of radio, rescuers were kept informed of the rising waters of the river crest, and such details as loose tanks on the water, persons in danger and other information.

Fire Follows Flood in Hapless Winsted

Still recuperating from the August flood, Winsted, Conn. was further ravished October 2, when one of the city's worst fires raged through two buildings just west of the main business district.

The fire originated from an unknown cause, but is believed to have been started by children about 1:00 P.M. in the three-story brick Lundahl Building, formerly a factory but vacant following the flood. Fifteen minutes later the unoccupied structure was an inferno. The heat was so intense that the six companies of Winsted firemen, summoned on a general alarm,. at first could not get near the building.

The flames jumped across the Mad River to the north bank to ignite the roof of the four-story brick Colt Building at 581 Main St., threatening to spread to other exposures variously damaged by the flood.

Mutual aid calls for help were early sent out and men and apparatus responded from Norfolk, Colebrook, Robertsville, Burrville and Torrington. They found it necessary for the most part to draft water from the Mad River, because all but one hydrant in the area had been put out of commission by the flood.

Firemen concentrated on confining the fire to the old Colt Building, with its oil soaked floors and other combustible construction. Despite their efforts the roof soon collapsed. At that time volunteers were playing a hose on the fire from the three-story adjacent wooden DePace building. The collapse caused them to flee, jumping to the roof of an adjoining two-story structure. One fireman slid down a roof incline to the ground. The other two were stranded. But not for long.

The boom of a 60-foot crane, one of many summoned by Army Engineers for flood cleanup, was lowered to the roof. The two firemen climbed into the bucket and were lowered to the street.

The crane was then used to tear down the Nanni Building, which also was unoccupied, and about to be demolished, to reduce the exposure hazard. As the crane tore into the wooden structure and piled the debris next to the DePace Building, firemen wet down the wreckage. A bulldozer was also employed to clear away the charred timbers falling from the window casings of the Colt Building.

As fire continued to eat downward through the Colt structure, officials determined to raze the walls because of the strong westerly wind. The crane was moved up to the building and began to tear away at the walls, cutting down the building, while firemen played streams on the burning ruins. At 5:00 P.M. it was decided to let the first two floors burn themselves out, but water was kept on the exposed DePace building as a precautionary measure.

The blaze was completely controlled at 8:40 P.M. with nothing but part of the walls of the Colt and Lundahl buildings left standing.

Winsted had three fire houses in the damaged area. Two can be repaired. One was totally destroyed.

Volunteers Aid Paid Force As Bristol is Bisected

Although the City of Bristol, Conn., was hard hit by the flood there was no loss of life "due in part," as Fire Chief George Graham reports, "to the fine rescue work of the Plainville Volunteer Fire Department's Rescue Squad, which operated in the Forestville section of

Photo courtesy Tom Magner

Havoc of floods leaves a trail of wreckage in Torrington, Conn., one of the worst hit cities during the recent storms.

Bristol." These volunteers made many daring rescues on the South side of the Pequabuck River, when all of Bristol's fire apparatus was cut off by flood conditions and marooned on the north side of the river.

The Wolcott Volunteer Fire Department also sent aid to Bristol in the form of a tank truck and pumper fully manned to provide fire protection on the South side of the then impassable stream.

Meanwhile, on the North side, Bristol Fire and Police forces won glory for themselves, with their rescue operations.

Chief Graham was called out at 12:30 A.M., Friday morning the 19th, and taken to Fire Headquarters in a Police cruiser. The center of Bristol was then flooded to a depth of two feet or better. The river flow continued to increase, and shortly the report came that two Bristol fire stations were being flooded, and companies were forced to move out to higher ground.

Pumpers and aerial ladder all negotiated the rising waters. The department's pickup truck was lost during efforts to rescue a man clinging to a tree.

At 3:30 A.M. Chief Graham reached fire stations where the re-located forces were stationed. At Engine 2, Mayor Casey used Chief Graham's car as a control and communications center until a central headquarters could be set up in his office at City Hall. The Chief's car and that of the Deputy Chief were the only two vehicles that had both fire and police radios and, by means of these, the Mayor was able to pinpoint operations and take command of the situation during the flood.

The Mayor, with Captain Webler, Chief Graham's aide, and the Chief, managed to reach the South side of the river to make a survey of that area. Road blocks were set up and traffic directed back towards the South as it was obvious traffic could not get across the flooded river, which divided the city. The Mayor asked citizens to act as policemen and turn back traffic as he and the chief proceeded toward Forestville. Public works trucks were ordered out to evacuate 75 or more people from flooded trailer courts and homes.

Estimates of the damage to Bristol may be of interest:

1. Public Property and Facilities (875)	
a. Rubble-debris clearance	$75,000.00
b. Sewage	60,000.00
c. Water supply lines	50,000.00
d. Schools	50,000.00
e. Fire houses	2,000.00
f. City hall	None
g. City and town roads	500,000.00
h. Bridges	400,000.00
i. Police station, cars, facilities	1,000.00
j. C. D. Materials	
k. Evacuation costs	
l. Public housing (local, st. & Fed.)	
2. Private Property & Facilities	
a. Residential housing	$300,000.00
b. Industrial plants	1,000,000.00
c. Business	800,000.00
1. Inventories	
3. Private Institutions & Churches	30,000.00

With the aid of firemen, paid and volunteer, Bristol managed to escape without a fatality. But it was touch and go. From the incident, Chief Graham reached these conclusions:

1. You must have good communications system during a disaster of any kind.
2. You must have a system for alerting the Public.
3. You must have good cooperation between all departments, which was fortunately the case in Bristol.
4. No city is sufficient unto itself, but must receive aid from its neighbors.
5. That you must have a good fire alarm system. All telephones were out in Bristol, but its fire alarm system stood up and, although poles went down, Chief Graham reports not a circuit or a box was lost throughout the city.

Waterbury, Naugatuck, Torrington Losses Heavy

The city of Waterbury, Conn., was hard hit. Twenty-one lives were lost in the area and flood damage was listed in the millions. There were no serious fires, but the fire department took heavy punishment and suffered costly damage.

Mayor Raymond E. Snyder declared a "state of extreme emergency" on the 20th, and imposed a 9:00 P.M. curfew. Electric power was cut off; wire communications disrupted and, worst of all, the city's 104,000 flood stricken residents were without potable water when the flood broke water mains. National Guardsmen and others hauled in water even while the flood continued, to bring relief, as Waterbury fought to recover from the worst disaster in its 269-year history.

Meanwhile the fire fighters led the vanguard of rescuers. Directed by Chief Francis T. Scully, they labored round the clock, pausing only for food prepared by the women's auxiliaries of neighboring towns, the Salvation Army and others.

Chief Scully praised the cooperation of volunteer companies from Cheshire, Southington, Wolcott, Middlebury and Watertown who sent apparatus and men to Waterbury. The Milford and Killingly Fire Departments rushed emergency supplies.

Details of the damage to Waterbury fire stations and apparatus are lacking. It is known, however, that the City had its newest metal aerial ladder (No. 3) damaged almost beyond repair, and that this occurred while its crew were engaged in rescue work.

According to the unconfirmed report, the ladder was extended with a fireman on it attempting to complete a rescue from an upper story when a partially submerged automobile came down with the fast current of the flooded area, struck and upset the ladder, tossing the fire fighter and the baby he was bringing down, into the flood waters. According to the report, the baby was lost, but the fireman was rescued.

Naugatuck, Torrington Area Gets Help From Outside

Fire forces in Naugatuck and Torrington were alerted on Friday the 19th to face much the same conditions as those of other communities in the Naugatuck Valley. Apparatus that was in danger from flooded fire stations was removed to higher ground. But wherever the fire fighters could drive it on mercy errands, it was taken. Many heroic rescues were made.

In these cities as elsewhere, bridges went out; roads were cut; barrels of oil,

Fire threatens flood-ravaged Winsted, Conn. Three flood-damaged buildings were involved in this blaze. The 4-story Colt building is shown burning. Building at right was torn down to check spread of fire.

The Manville Mill at height of fire. Inaccessibility to fire fighters was largely responsible for complete destruction of the plant.

chemicals and other flammables coursed down stream to become fire hazards; frame and even brick structures collapsed into the swollen waters.

An astonishingly high flow occurred in Naugatuck River near Naugatuck. With 246 square-mile tributary watershed, a discharge rate of 140,000 cubic feet per second, or 570 cfs per square mile, was experienced. The previous maximum in nearly 40 years was 28,500 cfs, equal to only twenty per cent of "Diane's" flood.

The city of New Haven, Chief Tom Collins, West Haven and other towns sent not only fire fighting apparatus and rescue equipment and personnel, but they also sped food and clothing. Chief Howard Reynolds of Eagleville, Tolland County Fire Coordinator, responded to a call for help about 6:00 A.M. on the 19th, with a crew of eighteen men, three boats, two rescue trucks, four generators and two portable pumps from the County. They headed for Torrington, but never reached there. After considerable detouring, they wound up in the Town of Plainville, about 50 miles up the Naugatuck Valley, where they pitched in on rescue operations, building barriers, and performing the many duties fire fighters were called upon to meet in the crisis.

The city of Torrington, like Bristol, was cut in half by the flood. The fire department had to evacuate its station and move to higher ground. Mutual Aid response was called upon to help cover the unprotected areas.

Early on the afternoon of the 19th, a small fire occurred in an apartment house on the outskirts of Torrington. Two pumpers and a ladder truck responding to this fire were lost in the flood. Fortunately, the fire was not of serious proportions and was extinguished by others. The foundering apparatus had to be towed back to quarters, and major repairs were required to get this equipment back in operable condition.

In this area communications were also a problem. Radio communications were established between Torrington and the city of Meriden by amateur radio operators. Through the "hams," contact was maintained with the Meriden Fire Department so that in case of serious fire its units could respond to the Torrington area.

Volunteer fire departments from various outside communities assisted in rescue and clearing debris and rubble from streets. As an example, Middlesex County, approximately 30 miles away, assembled eleven pumpers, approximately 100 men, and reported to the city of Torrington for whatever duty they might be given. Among other tasks they did fire protection duty during the period when the gas was being turned on in Torrington.

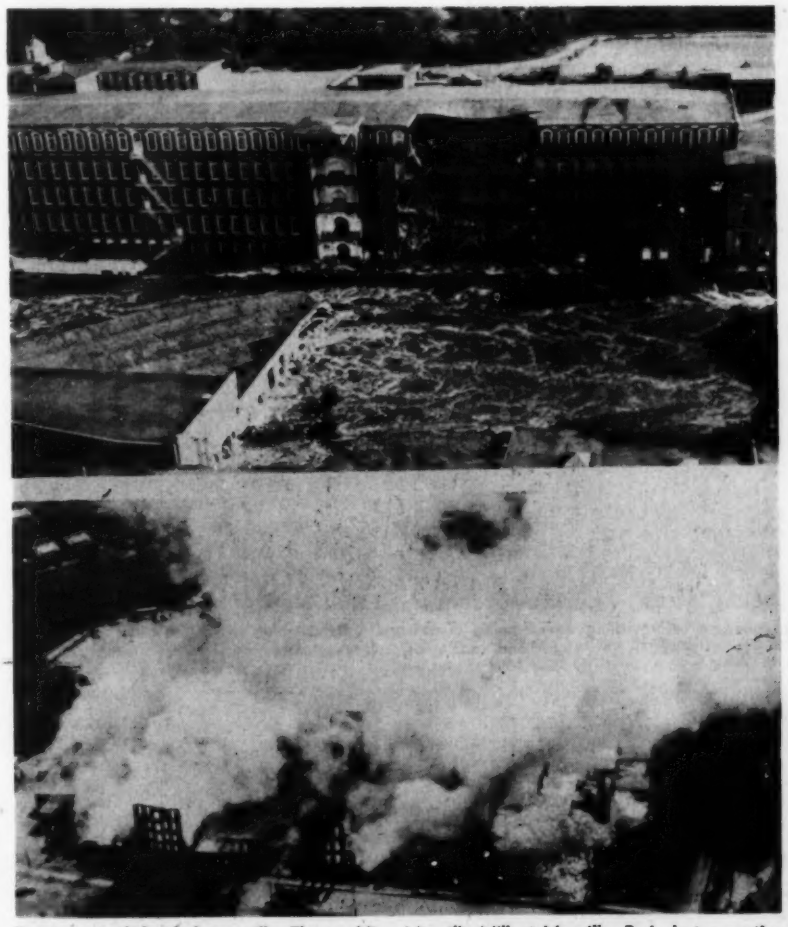
Much the same procedures were being taken in other flood-ravished communities in the Valley, and in Farmington, in Unionville and other affected valley areas. Everywhere there was interchange of assistance, fire forces from the less-stricken areas speeding to the assistance of their less fortunate neighbors.

Manville Mill Destroyed With Heavy Loss

Indirectly, the flood was the cause of one of New England's worst fires in many years, the total destruction of the giant Manville Mill, on Sept. 12, which straddled the Blackstone River in Cumberland and Lincoln, R. I., with loss reported at between $5 million and $6 million.

The sprawling one to five-story brick and wood frame buildings were occupied by the Royal Electric Co., Allen Wool Waste Co., Owens Corning Fiberglas Co. of Ashton and the Crescent Corp. of Fall River, Mass. The plant of the Atlantic Wool Combing Co., located 150 yards from the Mill, suffered water damage, but was saved by firemen.

(*Continued on page* 1122)



One-two punch levels huge mill. The rambling Manville Mill at Manville, R. I., lost a portion of its five floors during the flood of August, as shown by the upper picture. The lower view is of the mass of smoking rubble and debris after fire swept the plant on September 12.

Extinguishing Magnesium Fires

By CALVIN H. YUILL, Director, Fire Technology
Southwest Research Institute

THE rapid development of magnesium as one of our most useful metals has been nothing short of phenomenal. Light weight combined with strength provides a strength-weight ratio favorable for many applications in transportation, construction, and other areas. This one-time "wonder metal" has made its appearance on the ground, in the air, in the factory and even among pots and pans in the American kitchen.

Indicative of the wide-spread use of magnesium is its application in the aircraft industry. Both weight and strength are of extreme importance here, particularly in long-range and high-speed ships. A B-36, for instance, contains some 16,000 pounds of this metal in the airframe, landing gear, turrets, power plants, propellers and miscellaneous equipment.(1) The outer skin of several new aircraft is made largely of thin, sheet magnesium.

Many firemen have become familiar with the metal, too. Unfortunately, some have responded to an alarm only to discover one of the less desirable characteristics of the metal. Heated to 800°F to 1300°F, depending upon the specific alloy and particular form, magnesium will melt and burn with an exceptionally high temperature and an intense white flame.

Some will remember the magnesium powder used by photographers years ago. This was easily ignited with a mere spark and burned almost with explosive violence. Modern flash bulbs contain magnesium in thin sheet form.

Exposed to fire, thin sheet magnesium may ignite in a few seconds, castings may not ignite for from 3 to 5 minutes or more. Again depending upon the particular alloy, the metal may melt at, just above, or just below the ignition temperature. From the fire control point of view the combination of melting and burning, with flaming, molten drops falling to the ground, can complicate seriously the problems of fire fighting, especially where flammable materials are involved.

Violent Reaction a Characteristic of Magnesium Fires

Even more serious, however, is the violent reaction that can and frequently does take place upon the application of common fire extinguishing agents to burning magnesium. A pool of flaming magnesium when struck with water, for instance, not only may cause an explosion as the water turns to steam (as happens with any molten metal but the intense heat can decompose the steam into hydrogen and magnesium hydroxide.(2) The former, of course, accelerates the combustion and explosive reaction.

Any extinguishing agent composed largely of water normally may be expected to increase the rate of burning. Thus soda-acid extinguishers and mechanical or chemical foam should not be used on a magnesium fire.

Likewise, inert gases such as carbon dioxide and nitrogen are ineffective on magnesium fires. In the former application the magnesium draws oxygen out of the CO_2 to form magnesium oxide and carbon monoxide. In the latter instance, magnesium unites with nitrogen to form magnesium nitride.

Halogenated hydrocarbons such as carbon tetrachloride and chlorobromomethane react violently with burning magnesium to form magnesium halides and other products of combustion.

Special extinguishing agents have been developed for magnesium fires and many patents have been issued for such materials both here and abroad. Experimentation, however, has shown the difficulty of using proprietary compounds on any but fires of the scale occurring in foundries or metal working shops. Asbestos, talc, and other materials have been used succesfully on small fires at various times but evidence shows that these actually may increase the burning rate on large fires because of chemically combined water. Sand and iron filings can be used on small fires if particles have been screened through a 300 mesh or smaller screen.

Other materials that have been tried and found unsatisfactory for large magnesium fires include hand pitch, feldspar, volcanic ash, quartz dust, sodium carbonate, borax, boric acid, diatomaceous earth, sodium bicarbonate, soda ash, ammonium carbonate, aluminum sulfate and calcium chloride. Some of these are completely ineffective—others show good results on small fires.(3)

Heavy oils—steam cylinder oil, motor oil, and pit car oil—have been used effectively on magnesium fires of moderate intensity but themselves will burn on hot fires with little extinguishing action. Many vegetable oils have been tried with slight success. These include olive oil, soybean oil, linseed oil, cottonseed oil, corn oil, and many others.(4)

Argon has been used with some success in enclosed spaces and some producers of magnesium have found boron trichloride useful for extinguishing fires in heat-treating ovens. Neither type is acceptable for outdoor use on large magnesium fires because of atmospheric dispersion.

Magnesium extinguishing agent being discharged by nozzleman at left; water fog through right-hand nozzle controls secondary fire.

Demonstrating control of magnesium fire with triethylene glycol and boric acid mixture. Foam used for gasoline and secondary fire.

Much Experimentation During World War I

During World War II much work was done in attempting to find an effective extinguishing agent for incendiary bombs composed largely of magnesium. Solids of the types mentioned and in granulated form were found to serve best in extinguishing the fire or reducing the rate of combustion. Complete removal of the bomb was recommended in most cases, however.

The Chicago Fire Department in a series of outdoor tests with castings found that some control could be effected by using a water stream, working slowly from unignited portions and gradually cooling the castings to below the ignition point as the stream was slowly moved toward the fire. Water spray was used to extinguish molten magnesium fire by cooling the top surface until a crust formed.(5)

The National Board of Fire Underwriters and the International Association of Fire Chiefs conducted a series of tests

Typical pile of magnesium scrap used in screening tests. New extinguishing agent discharged from portable "mule" in left background.

substantiating the work in Chicago but demonstrating the care with which water must be used to prevent reactions of explosive violence.(6)

Two years later the Army Air Forces issued a report on work done at the Factory Mutual Research Corporation on protection of aircraft against magnesium fires. The burning characteristics of magnesium were well established in the laboratory and a large number of materials — gases, liquids and solids — were evaluated in standardized laboratory fires.(3)

Here it was established that magnesium, except in the form of powder, shavings or very thin sheets, does not readily ignite except upon severe exposures. Consideration was given to possible variations in the composition of the alloy as a means of increasing the ignition temperature. Surface coatings were considered as means of rendering the metal more fire retardant. Actually, however, factors such as increased weight or reduced strength afford practical limitations to this approach.

Dry powder extinguishers especially designed for magnesium fires were found to be effective when the ratio of powder volume to magnesium volume was large. A noteworthy conclusion stated that "Once burning has been established, extinguishment is exceedingly difficult if not impractical with any of the extinguishing compounds now known."

Subsequent work by the Air Technical Services Command confirmed this finding.

Mention should be made of the work by the Dow Chemical Company and the Ansul Chemical Company in developing dry chemical extinguishers for magnesium fires. The latter and the Pyrene Company manufacture and sell such extinguishers and both are approved for use on small combustible metal fires by the Underwriters' Laboratories, Inc.(7)

Extinguishing Agent for Large Magnesium Fires Sought

With a rapidly expanding use of the metal, however, the need for an effective extinguishing agent to use upon large magnesium fires is very real. Fires in gondola cars loaded with magnesium scrap, in plants containing large amounts of magnesium aircraft parts, in truck-trailers with magnesium bodies, and in aircraft, pose a problem to the fire fighter that he is not equipped to meet. In fact, unless fully informed on such matters, he may inadvertently make a bad situation worse, endanger his men, and spread the fire.

Because of the large values involved in an aircraft crash, both in men and equipment, the Air Force has played a leading role in the study of the problem.

Late in 1952, Wright Air Development Center contracted with Southwest Research Institute to examine the entire field of known chemicals and compounds with a view to finding those best suited to the extinguishment of magnesium fires of the scale to be anticipated in aircraft crashes.(8)

The first phase of the research project consisted of a survey of the literature including domestic and foreign patents to establish a background of information from which to start the investigation. Persons familiar with the problem were interviewed as were manufacturers of magnesium and magnesium metal-workers.

In the research program, the most promising materials based upon previous work and on theoretical determinations were tested on small magnesium fires consisting of 5 lbs. of sheet magnesium scrap. The pile was ignited with gasoline and the extinguishing agent applied when approximately one-third of the magnesium was burning.

The time for knockdown and complete extinguishment was noted, the amount of entinguishing agent used was measured, and the amount of magnesium remaining weighed. Weather data was recorded as was data concerning any secondary fire and the method used for extinguishment of the secondary fire.

Those agents showing promise were used on larger 15 lb. fires consisting of 10 lbs. of sheet scrap and 5 lbs. of small castings. Tests with these fires demonstrated clearly that certain compounds were better for this purpose than others and as a further check the best were tried on 100 lb. fires with one-half the weight in sheet material and the other half in castings. A final check with 200 lb. and 500 lb. fires was used for the most promising compounds.

In the course of the program, a unique laboratory method was developed for determining the amount and stability of foam produced by means of different additives. One hundred and sixty-three materials were checked in this test and those with satisfactory response tested on the 5 lb. fires. None was as effective as the more successful liquids.

Physical characteristics of the materials considered were taken from known data and from laboratory determinations.

Extinguishing Liquids Developed

Under the leadership of Dr. Roy McCutchan, of the Department of Chemistry and Chemical Engineering, two liquids were found to have definite extinguishing characteristics when used on magnesium fires. The first is a solution of 9-17% boric acid in triethylene glycol and an application for patent has been filed on this. The second is tricresyl phosphate. Both produce a secondary fire that can be controlled with water fog or mechanical foam. Both are noncorrosive, are nontoxic under conditions of projected use and are adaptable to present fire fighting equipment. They also are available in commercial quantities at reasonable cost.

Additional work pointing toward the same objective has been going forward at the Francis Earle Laboratories, Peekskill, New York. Results of this work are not available at this writing.

The problem of combustible metals, including magnesium, zirconium, thorium and others, is a matter of growing concern to large scale users and to fire fighters. With the rapid increase in the use of these materials, the magnitude of the problem is increasing proportionately. It is hoped that work in this field will be continued so that the usefulness of new chemicals may be measured and new and better materials developed for the purpose.

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Five Aircraft Firms Suffer Fire Damage

Two huge buildings housing five aircraft parts manufacturing concerns were destroyed in Inglewood, Calif., on October 23 when flames raged through them.

Ruined were the Sanford Aircraft Company, Walmore Equipment Corporation, Jet Fitting and Supply Company, Associated Machine Sales and Precision Machine Rebuilders, all housed in the 1000 block of West Manchester Boulevard.

All of Inglewood's fire equipment and six companies of Los Angeles County Fire Department apparatus, responding on mutual aid, fought the flames.

A. A. Cooper, part owner of Jet Fitting, said precision equipment and stock of the five companies was valued in excess of $500,000. Value of the building was placed at $150,000 by its owner, Spencer Wright.

A trailer park adjoining the building was threatened by flames. Six trailers were pulled to safety, although two of them were slightly scorched.

The flames in the L-shaped one-story building are believed to have started in the Walmore plant section and spread to the Sanford area, covering 45,000 square feet. PAUL C. DITZEL

Driver Training and Safety Education in Fire Departments

Part 2 (continued): Test Equipment; Braking and Stopping Figures; Fire Apparatus Road-E-O

By LT. THOMAS D. RYAN
New York City Fire Dept.

THE natural follow-up to the road-e-o in the course of instruction for new men is the driving test under actual traffic conditions. As is later described under the Refresher Course, this test in traffic will be an important adjunct in the checking program which will encompass those men who are already assigned to drive. The objectives of such a test would be fourfold:

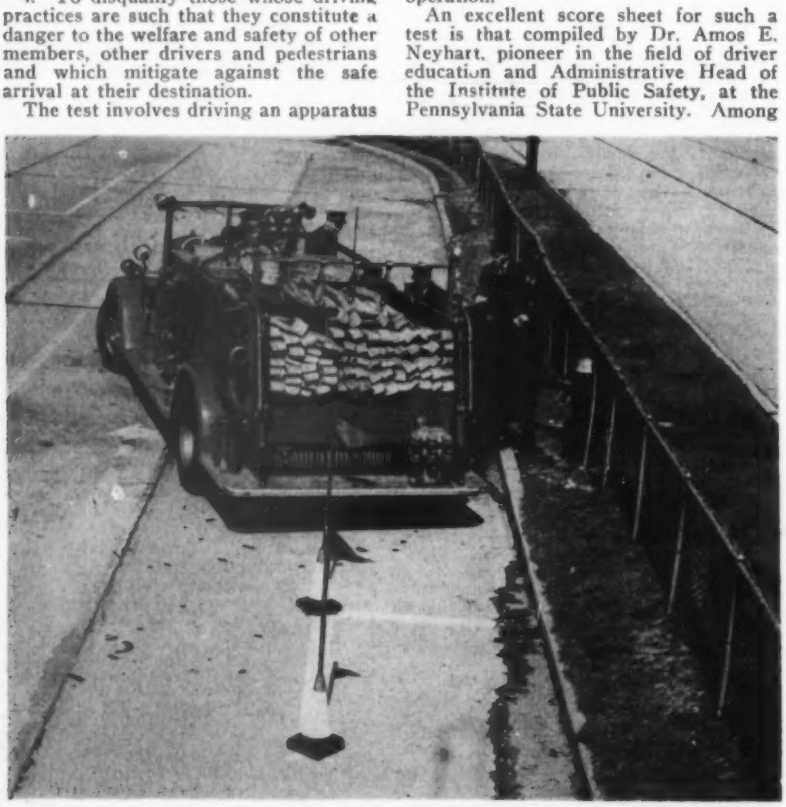
1. To measure the driver's ability to operate the apparatus safely and properly under typical driving conditions.
2. To determine whether or not retraining is necessary.
3. To instill in him the attitude that his job is more than simply driving a fire vehicle—that he has an important responsibility to other members of the company and to their families, as well as to the department itself.
4. To disqualify those whose driving practices are such that they constitute a danger to the welfare and safety of other members, other drivers and pedestrians and which mitigate against the safe arrival at their destination.

The test involves driving an apparatus over a predetermined course on streets where traffic is moderately heavy. While covering the course the examiner, seated beside the driver, has an opportunity to to judge accurately and grade the driver's ability to operate the apparatus safely and efficiently. The route chosen for members attending the Motor and Pump Operators School might very wisely be one nearby the road-e-o course; under the refresher program it might better be in the neighborhood adjacent to the company's quarters. At any rate the course selected should be sufficiently long for the examiner to have adequate opportunity to form well founded conclusions regarding the candidate. It should contain right and left turns, intersections, stop signs, traffic lights, grade curves and other maneuver situations pertinent to the particular operation.

An excellent score sheet for such a test is that compiled by Dr. Amos E. Neyhart, pioneer in the field of driver education and Administrative Head of the Institute of Public Safety, at the Pennsylvania State University. Among other aspects it contains a detailed list of items for which demerits are given, such as: 1) Checking the driver; 2) Starting the engine; 3) Starting in low gear; 4) Backing up; 5) Clutching and shifting gears; 6) Steering practices; 7) Railroad crossings; 8) Speed Control; 9) Stopping habits; 10) Stop Streets; 11) Intersections; 12) Signal Violations; 13) Signaling failures; 14) Passing other vehicles going in same direction; 15) Position of vehicle on roadway; 16) Smoothness of operation. In addition, deductions are made for inattentiveness, nervousness, overconfidence, failure to use rear-view mirrors and failure to anticipate or respond to hazardous traffic conditions in the making (including pedestrians).

Directions for the administering and scoring are included with the test and, aside from some slight modifications due to the emergency nature of our work, it would appropriately fit into any fire department program. This particular test has been developed and standardized through usage for over 10 years by fleet owners, fleet supervisors and other commercial enterprises.

Two other similar tests reviewed were: 1) "The Standardized Road Test for Drivers" of the American Transit Association, N. Y., and 2) "The Abercrombie Rating Scale for Automobile Driver Skills" of the N.Y.U. Center for Safety Education.



Hydrant Hook-up Problem develops skill for actual field operation. Pumper must be positioned between stanchions placed to show limitations encountered by parked cars. Necessary realignments costs candidates valuable points in scoring.

Classroom Instruction

While it is true that driver training is a practical subject, with the accent on the actual performance of the skill, the foundation for this performance can best be laid down in the classroom. Previous explanations of the whys and wherefores of certain recommended procedures can accelerate the learning process on the proving ground. For example, in covering the topic of proper selection of gears and timing when shifting, classroom diagrams or cutaways of transmissions can make clear the variations in gear ratios; why it is necessary to double clutch and synchronize the speed of the transmission gears before meshing them; and why engine speed must be a considered factor in developing horsepower to move the vehicle under a variety of circumstances. On-the-road training vitalizes such information, and the candidate "sees for himself" the reasons for, and effects of, proper shifting, as he practices this skill and acquires this correct habit.

Speed

In its yearly publication "Accident Facts," the National Safety Council

shows speed played a part in one out of every three of the nation's fatal accidents; but speed by and of itself is not a disproportionate cause of road mishaps. Rather it is the habit of too many drivers exceeding what may be termed a "sound speed," one reasonable for existing conditions and so controlled that the vehicle can be stopped before hitting any other vehicle or pedestrian that might possibly get in the way. It further means controlling the car or truck to a speed which will permit it to be properly controlled or stopped between the time the driver reacts to a hazard and the time the hazard is reached.

A consideration of the factors on braking force shows the foolhardiness of some chauffeurs who traverse the same stretch of road at the same rate of speed regardless of road, traffic or weather conditions, often in accordance with an outmoded chart of "running time" to various stations. Speed should and must be reduced to meet such conditions, giving proper regard to the weather, traffic, intersections, character of the roadway, type of vehicle driver and all other existing conditions.

Common sense dictates that a speed of say 40-50 m.p.h. may be used in comparative safety on a certain avenue in the very early morning, with little traffic and under clear weather and road conditions. This speed must be reduced proportionately during the day as traffic increases or as night falls and lower visibility sets in. It must be further reduced under adverse weather or road conditions. This original safe or "sound" speed of 40-50 m.p.h. may have to be dropped to 10 m.p.h. while traversing the same thoroughfare if it becomes wet, icy or snow packed.

Most, but not all cities, give fire apparatus the right of way, at least in responding to alarms. This right or privilege should not be abused to the point of recklessness which will likely result in collisions and accidents.

Kinetic Energy

All the laws of physics concerning energy of motion, or kinetic energy of a moving body, apply to a speeding car, truck or fire apparatus. This kinetic energy varies as the square of the speed, so that if you double the vehicle's speed its kinetic energy will quadruple.

This inescapable physical law is very much in evidence when cars collide. Of course, it is self evident that even though speed and kinetic energy remain the same, the force of impact is considerably less if the object struck is a hedge, haystack or other yielding object rather than a concrete wall or another piece of fire apparatus. The situation is further aggravated if the object struck is another vehicle coming towards you at considerable speed. The force of impact of a vehicle traveling at 20 m.p.h. and hitting a fixed solid object has been likened to the car being dropped from a one story building. If the speed were increased to 60 m.p.h. under the same conditions the impact would be the same as dropping the car from a nine story building. Obviously, therefore, our speed rapidly builds up our potential striking force in collision with an object. As drivers we exercise no control over the resistance of the car or object we strike, in case of an accident. We can, however, control our own speed and by that means reduce the severity of any accident.

These seemingly abstract facts are of importance to the driver because: 1) The only way he can stop his moving vehicle is to use up its kinetic energy; and 2) The greater the vehicle's speed, the more kinetic energy he must use up before he can stop it. The only practical method we have of using up the moving car's kinetic energy is the application of the brakes, thus changing kinetic energy to heat, which can be felt on the brake bands. When this happens, there is a push back of the road against the tires. This push back, which uses up the energy the car had before the brakes were applied, we call the Braking Force. It is the product of the weight of the vehicle (W) times the coefficient of friction.

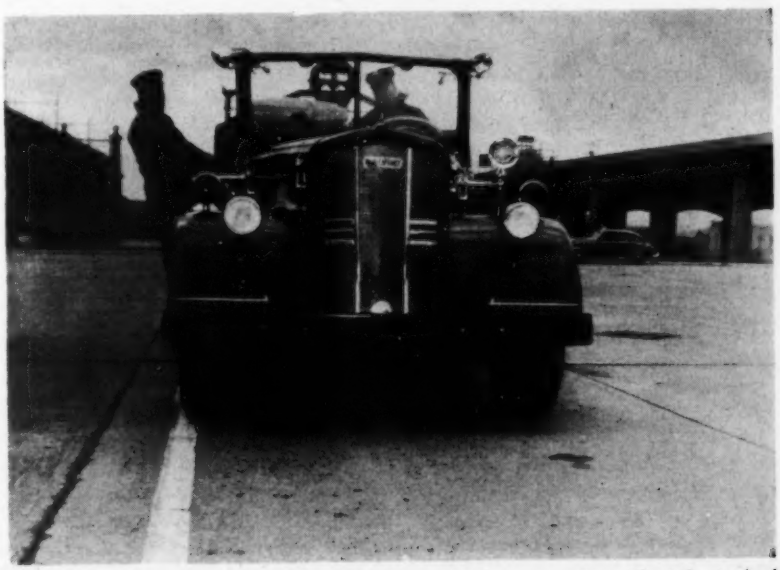
BRAKE, ROAD, AND TIRE CONDITIONS	BRAKING FORCE
Hard, dry road, average tires and brakes	.5W to .4W
Wet road, average tires and brakes	.25W to .15W
Icy road, tires from average to poor condition, average brakes	.1W to .05W

Braking Force

In addition to the speed at which the apparatus is moving, the other two remaining factors playing a part in braking are dependent on friction: firstly, between the brake shoes and the brake drums and, secondly, between the tires and the road. The resultant braking force is the one that actually stops the car or truck.

On a straight, dry road, with new tires and brakes in excellent condition, it is possible to develop a large braking force by stepping hard on the brake pedal, thus using up the car's kinetic energy and stopping the car quickly. Under such circumstances the coefficient of friction may be as high as .80 or .90.

Skill in handling fire apparatus in heavy traffic is developed by Serpentine Test. Having brought vehicle forward through entire problem, driver then reverses field.



Apparatus must be advanced and then reversed in smooth, even motion without front wheel leaving 4-inch-wide line as candidate completes Straight Line Driving Problem.

Experience in parking surplus apparatus at curb, out of the path of other incoming apparatus, is gained in Parallel Parking Problem. Shown here, pumper is parked on driver's side. On official run, however, it must be parked on "blind" side, adding to difficulty of problem.

However, due to road imperfections, brakes in less than perfect condition and other migrating factors, it has been found that the coefficient is close to .50 for average driving conditions.

Although the composite is dependent on the condition of the brakes, tires and road, the actual braking force is determined by the weakest source of friction between the three items. Good tires cannot compensate for worn out or greasy brake linings; nor can brakes in perfect condition prevent a low braking force if tires are worn smooth or if the road is wet or icy. Apropos of this, one study showed that stopping distances may increase to two-and-one-half times as much on a wet road if the vehicle's tires are worn smooth. Based on an average braking efficiency of .50 the preceding table shows how the cumulative effects of adverse driving conditions reduce the vehicle's braking force.

One high point of information on the table shows that it may take as much as ten times the distance to stop a car on an icy pavement as it does on the same road, when it is dry.

Another study at Iowa State College on the use of tire chains on snowy or icy roads showed that the average braking distance of 30 ft. of a car going at 20 m.p.h. increased to 69 ft. on packed snow. This distance could be reduced to 40 ft. if tire chains were used. Further tests on glare ice with synthetic tires and no chains showed a braking distance of 197 ft. (or 169 ft. using natural rubber tires) which could be reduced to 88 ft. by using tire chains.

Today, few passenger cars or commercial trucks use synthetic tires. During World War II and until five years ago these synthetic tires (consisting of 90% synthetic rubber and 10% natural rubber) were the only ones available. Today's products have the proportion reversed, but because of the limited mileage of fire apparatus many pieces are still "rolling" on synthetic tires with the consequence of lessened braking efficiency under certain conditions.

Training Aids

In this area of training, as in others, the value of visual auditory and audio-visual devices as aids to learning has been clearly demonstrated. Our experiences in World War II showed significantly that such aids, which were widely used, not only shortened the training period but also increased the effectiveness of the instruction. Educators agree that in many learning situations, direct experiences are most desirable but this is by no means the case in dealing with some phases of driver education. Accidents and near-accidents are experiences which the driver must be taught to avoid and, although this should be accomplished largely through positive instruction in skills and attitudes, the reality and undesirability of such experiences must be underscored through proper use of audio-visual aids. These aids are now available in such numbers and variety that both positive and negative approaches in driver education may be effectively supported. They cannot completely replace other methods of instruction but they may be used to definite advantage in introducing a subject, in presenting aspects of it which could not otherwise be shown, and in summarizing the basic content of instruction.

Visual Aids

In the dynamic visual aid area, motion pictures have found wide usage. The technical possibilities of motion picture close-ups, speeding up and slowing down, have no counterpart in other instructional aids. An excellent list of films and film strips suitable for the various phases of driver education is contained in the publication "Highway Safety and Driver Education" and are classified by topical area. These films may be obtained on a loan or rental basis or may be purchased from the various sources.

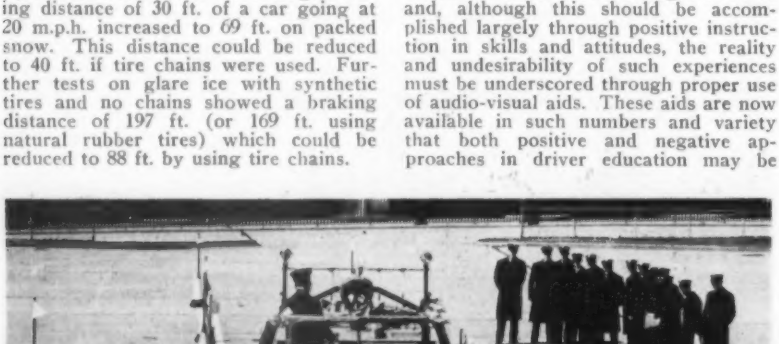
Among other films reviewed in this study and earmarked for future use were: "A Professional Portrait" of the General Motors Corp.; "Champions at the Wheel" of the Aetna Casualty and Insurance Co.; and "A Day in Court" produced by International Harvester and procured from the American Automobile Association.

As a static visual aid, an excellent sound slide film "The Skill Behind the Man" was made available by the Fruehauf Trailer Company. A series of 35 mm. film stock is shown in quite rapid succession "in step" with a running verbal discussion transcribed on a record and heard by using a 33⅓ r.p.m. record player and loud speaker. Although embodying recommended practices for commercial trailers, it was in the main adaptable for fire apparatus. The fire service could well use it as a template in the preparation of a similar medium particularized for driver training in fire departments.

Besides distributing a variety of excellent films on this subject, the Aetna Life Affiliated Companies furnish, without charge, sliding brake charts showing the distances traveled before brakes can be applied at various vehicle speeds, and how the stopping distance lengthens as speed increases. These figures are substantiated by outside demonstrations using the detonator and other equipment previously explained.

Magnetized Traffic Board

In existence for some time past, but lately becoming increasingly popular, is the use of a metal board depicting intersections and other traffic layouts and small models of all kinds of vehicles which have been magnetized so they adhere to the board. By means of this valuable training aid, real or simulated situations are brought to life for instructional as well as investigational purposes. Further usage includes demonstrations of turning radii of value when entering or leaving fire stations, as well as setting up scenes of accidents, whether actual or anticipated. Concrete proof of their practical value is evidenced by the fact that they are being used daily by the largest fleet owners, universities, colleges and driving schools, state highway departments, state and local police departments, traffic courts, insurance and public service corporations. In addition to being regularly used in the Motor and Pump Operators School, this device has been found to be of considerable value by our Board of Inquiry, in-



Skill in maneuvering through tight places in heavy traffic is developed by Offset Alley Problem. Candidate pulls ahead of and then backs through alley with limited space on each side. From a limited depth he then advances through the other alley (shown to right) with the same side limitations.

vestigating fire apparatus accidents in this city.

Classroom Instruction

Faulty ideas or incorrect habits, detected through the attitude test, may also be clarified through classroom instruction. Similarly, topics introduced in the Traffic and Driving Knowledge Test can be more extensively treated here. For example, because he responds in all kinds of weather, the fire apparatus chauffeur should be adept in handling a skidding vehicle. He should know that throwing a car or truck into a skid by misuse of the accelerator is unusual. Most times, as professional drivers know, it is the brake pedal that makes the mischief. But, because of the infrequency of the experience, many operators, even though they may have piled up thousands of miles of driving experience, have never learned to handle a vehicle once it goes into a skid.

Detailed studies have shown that, although the greatest number of accidents occur on dry roads and in clear weather, the accident rate, which is to say the number of crashes per certain number of vehicle miles, is multipled by eight when the road becomes wet, snowy, slushy or icy. By use of the magnetic board and small scale models, the instructor should show how the driver can bring the vehicle out of a skid by:

a) Keeping himself under control.

b) Turning the wheel slightly in the direction in which the rear end is skidding.

c) Avoid braking.

d) Keeping clutch engaged and

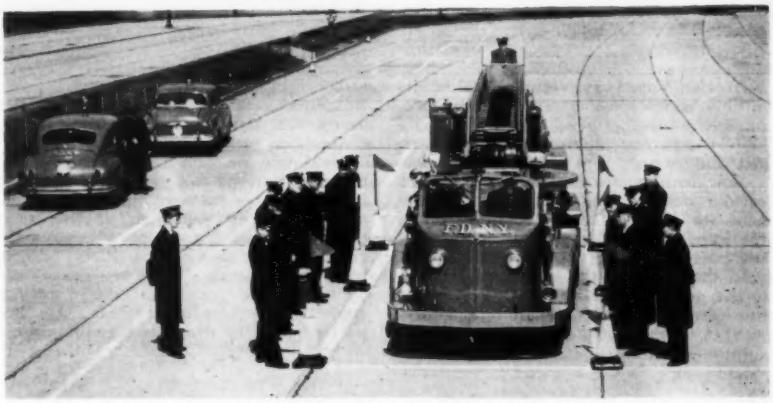
e) Not lifting the foot from the gas pedal suddenly.

Demonstrations

Figures in themselves are too often unimpressive and too easily forgotten. To drive home the topic of skidding on ice, as covered under Braking Force with its accompanying table, a recent demonstration was attempted by the writer. Using completely new equipment on a dry concrete road, the braking efficiency was established at 67%, and the total stopping distance at 20 m.p.h. was 42 feet. It need hardly be pointed out to the reader that these are exceptional figures and such that we cannot expect to duplicate for all vehicles and roads. Since the weather was cold, the testing ground (an enclosed parking field) was then given a light spray, using the booster tank of the pumper. Another brake test was then given, using the same driver and the same pumper as previously. In spite of the fact that the tires easily ground through the thin surface of ice to the concrete, the apparatus skidded noticeably and traveled a distance of 131 feet before stopping. Even if the ground is only wet, the "before and after" of such demonstrations makes a vivid impression, one that is likely to be borne in mind on an actual run under similar conditions.

Other topics best covered, or at least initiated, to considerable advantage through the medium of classroom instruction, include: a) Rules of the road and safety precautions, including right of way and correct hand signals; b) Recognition and interpretation of road signs; c) Legal aspects of driving; d) Recommended starting, driving and shifting practices; e) Reaction and braking distances; f) Meaning of various lines on pavements; and g) Correction of ideas which cause faulty attitudes.

Alley Dock Parking Problem simulates entering and leaving quarters, with benefit of turning radius in front equal to width of average city street.



Road-e-o is climaxed by the "On-the-Nose" Finish. Vehicle must be driven through lane of stanchions and brought to an even stop with front bumper over finish line.

Acting Deputy Chief Thomas P. O'Brien, in charge of Accident Control Bureau, explains details of Road-e-o course to group of candidates, as Lieutenants Thomas Ryan (right) and Thomas Clements, instructors at Motor and Pump School, look on.

As a final point of consideration in covering this medium, it must be pointed out that for the most part the emphasis in driving training programs is placed on the avoidance of accidents with other vehicles, with resultant neglect in handling the problem of pedestrians. Significantly enough, cold figures tell us that one third of all persons killed in traffic accidents are pedestrians, with the figure jumping to two-thirds in the average American city. In cities of over 500,000 population 80% of persons killed in traffic accidents are pedestrians. Among these fatalities were children at play, elderly people, those almost blind, hard of hearing and confused and, in two-fifths of the cases, those in an intoxicated condition. Darkness also enters into the picture, dimming the vision of both driver and pedestrian. These and other aspects of the pedestrian problem must be taken into consideration, given proper emphasis and corrective measures recommended.

Conclusion

Common sense dictates that a fully competent fire apparatus driver cannot be turned out by the school alone, nor by an instructor in a single visit to a company at their quarters. Good driving habits are inculcated by frequent prac-

(*Continued on page* 1106)

Overhaul and Salvage in Theory and Practice

Part VIII. — The 'Tools' of Salvage. . . . The 'Cover' or 'Tarp', . . . Is There Room for Improvement in Facilities? . . . Recent Developments

By ROI B. WOOLLEY
Assistant Editor, FIRE ENGINEERING

Editor's Note: Previous installments of this series have covered all the preliminaries of the *need* for salvage; its history and development in the American and British Fire Service; its emergence from a fire insurance to a *fire service* facility and responsibility; the need for pre-fire salvage planning, and the importance of inspections as a prerequisite for better salvage operations.

In this Chapter the author gets down to the practical phases of salvage operations, beginning with the study of equipment and that prime requisite salvage tool, the salvage cover, or tarpaulin. Subsequent installments will further develop the varied and diversified mechanics of modern salvage practice.

It should be said here that some of the observations and prognostications of the author are his own thinking and do not necessarily represent at this time the considered viewpoint of any associations or groups of fire chiefs, or protection engineers. They are introduced by the author purely to inspire greater study and research in this most important field of fire waste reduction.

BY this time those who have followed this series of studies on salvage and overhaul should be pretty well convinced of its importance in the field of fire waste reduction and that it is a prime factor that should be included in all prefire planning, inspection and preparation for fire prevention and fire suppression.

Probably the first attempts of man to protect his possessions against damage by the elements was some sort of cover-all. It is known that fire salvage work antedated any comprehensive attempts to extinguish fires, once they started. In fact, extinguishment, as practiced in the early days of Great Britain and this country, was conspicuous by its absence; instead, people concentrated on the removal of such goods as they could from the path of the fire. And as we have said in an earlier chapter, this attempt to salvage their possessions ultimately led to organizations such as the "Mutual Assistance Bag Company," reportedly the nation's first accredited salvage organization.

The chief tool of these enterprising, if ill-trained groups, was the canvas bag. "Two stout canvas bags about two by three feet in size" were required by each member of the bag company, who in the vernacular of the day was called "bagman." His name was inscribed in full on the outside of each of his bags together with the letters "MA," surrounded by a circle. He was further identified by his round hat with black brim and white crown, bearing the initials "BM" in front.

In time of fire the possessor of these bags was required to respond with them to the scene of the blaze (wearing his other insignia, of course) and if a fellow member's property was in danger, it was his duty to help save all that he could, using the containers.

The bag, therefore, may be said to be the forerunner of the later day salvage cover, just as the bagman or member of the Mutual Assistance Bag Company was the antecedent of today's salvage corpsman.

Various kinds of sheets and blankets, in fact anything that would repel water, also are said to have been used in this connection. And from these developed the tarpaulin and the salvage blanket, or cover.

As fire service salvage grew and the problem of protecting the nation's increasing resources from fire (primarily) grew apace, the cover assumed increasing importance. This was reflected in the more exacting specifications for protective covers adopted by salvage corps anl patrols, and by the fire service which undertook salvage operations.

It was not merely a question of creating waterproof or water-repellent canvas, rubber or other type of sheet for such covers; it called for a product that had all the virtues of water and weather repellency, but in addition certain other attributes, requisite to efficient covering.

Photo courtesy Worcester, Mass., Protective Department

Tiny electric pump takes water from bagged cover at this Worcester, Mass., fire. Used thuswise, covers must not leak.

Value of Salvage Covers

Covers represent one of the largest items of expense in the performance of salvage work. There fore, fire insurance salvage patrols and all fire departments which seriously practice salvage, practice all possible economy in the selection, use and maintenance of this salvage facility.

Large users of salvage covers, such as fire patrols and squads, have considerable investment in covers. To them,

Photo courtesy Los Angeles Fire Department

Just any old cover won't do for modern salvage work. Size, weight, treatment, finish—these and other details of protective covers have been determined by long usage and scientific study. Here, Los Angeles salvage corpsmen demonstrate covering shelving. Note stock is studded. Salvage operations such as this may require short ladders and plenty of hangers.

maintenance of covers is a serious business, just as is the use of covers so as to avoid injury.

It is hardly possible to measure the actual lollars-and-cents value of a salvage cover in terms of property saved. A salvage cover at one fire may be employed to protect from water damage merchandise and furnishings of small value. Again, the same cover may become the protector of a baby grand piano or an antique worth several thousand dollars. At still another fire, the same cover may be found furnishing security and shelter from water to immeasurably costly machinery or electrical equipment.

Actual monetary worth of a salvage cover may be estimated by its original cost, plus cost of keeping it in good condition (repairs and other maintenance charges) divided by the number of fires in which it is used, and property it has protected from water or other damage. Obviously the longer its operational life, the greater its return on investment. And even after it has served its prime usefulness, it may still contribute further toward preventing damage by the weather, or fire extinguishing operations, as some form of a storage or general utility covering.

Opinions Differ on Covers

There is still some difference of opinion between experts on the subject of covers, blankets or tarpaulins, as they may be called. Although there have been a number of new types of such products made, especially since the introduction of modern plastics, those who practice fire service salvage to any degree have maintained their loyalty to one or another form of cover material which they have used successfully over the years. Many authorities are convinced there will ultimately be still further improved salvage covers, perhaps for the most part made out of new and hitherto unexplored materials, chiefly in the plastic group. This does not necessarily mean that the orthodox and widely accepted treated cotton salvage cover will disappear from the scene.

Although there may be some difference of opinion over the new as against old types of cover material, there is agreement, however, on the principles that a salvage cover should shed water and at the same time hold water under reasonable pressure when "bagged." There is further agreement that a cover should not get sticky under heat application; that it should be as near chemical proof and as light and easy to handle as possible.

Some rubber covers measure up to some of these requirements, notably their imperviousness to water. But they have other disadvantages, notably cost, which is generally higher than the best treated canvas cover. The rubber products weigh more than other types and have a tendency to slip from high piles of goods and from shelving; and they are not as well adapted to bagging as other kinds because of the difficulty in rolling the edges. Still another difficulty of the rubber type is the tendency to become soft when employed in temperatures not infrequently encountered at fires, and to become brittle, and split or crack when left folded in storage for any appreciable length of time.

The Treated Canvas Cover

The cover in most general use is known as the treated canvas type. The canvas used in this type is treated to make the material waterproof. But it is difficult to waterproof them uniformly, particularly at the seams, and according to the experts they may leak under pressure after they have been used extensively.

Leakage, naturally, is due to the wearing away of the water-proofing solution. Furthermore, there is a tendency for this type of material to mildew when stored for lengthy periods, unless it is chemically treated. But, to quote Chief Frank McAuliffe (*Fire Department Salvage Operations,* published by the National Board of Fire Underwriters) "these are minor objections compared with their merits which outweigh those of rubber covers."

Another attribute of the canvas cover is that it is lighter in weight and more resistant to rugged usage encountered at fires. Also, under most operating conditions, the edges of the cover are more easily rolled and they retain their rolled position so highly desirable when arranged to catch water on flat surfaces.

The canvas cover is about the oldest type in use, and through the years the manufacturers of such covers have consistently improved the treating processes (and other characteristics) to make them tougher and more durable, and to give them longer service life.

Size of Covers

Opinions vary among salvage authorities as to the most satisfactory size. One believes the most practical size to be the 12x18 feet. Another claims the most

Photo courtesy Worcester, Mass., Protective Department

Water in this fire is bagged and diverted into cover-chute (lower center) to open air. Such catch-alls can be devised from furniture as shown or stock, suspended by grommets.

satisfactory all-purpose type to be the 14x18, weighing approximately 32 pounds. The cotton treated 12x18 foot covers weigh 27 pounds.

Present day cotton treated covers also come in 9x12 foot size.

In addition to regulation fire service salvage covers, mentioned above, there are several other types:

Roof Covers: These are heavy duck covers used in covering roofs after fires, and also for covering oily machinery and broken store windows or doors, to protect them from the weather and trespassers. Usually these covers measure 12x12 feet and 14x14 feet.

Asbestos Covers: Generally used to protect a room or material from damage by heat and/or steam. They are also used to protect fireplaces in controlling chimney fires and for other specific purposes. One application, only recently found practicable, is in controlling truck tire fires.

Motor Covers: Usually made from discarded roof or other covers which have been torn and damaged so that full use of the cover is no longer possible. Small in size but usable for covering motors and small oily items.

Utility Covers: Treated and untreated, used to cover fire apparatus motors or other objects against weather or dust. Sometimes used as "carryalls" or "body bags."

Plastic Covers

Within the past few years several types of plastic covers have been introduced to the fire service and some salvage companies have experimented with them, with varying degrees of success.

One type is a vinyl plastic coated glass cloth blanket, not presently made in the larger sizes. This product may be thrown over a person or machine enveloped in flames to effectively cut off the oxygen and smother the fire. It can also be used as a first aid fire fighting measure in smothering fires at vents, manholes, in barrels and buckets, or other containers, or used as a welding screen.

This type which evidently finds greater utility in protecting against fire than water used in fire fighting, requires no other covering for the latter purposes; it is coated with a plastic compound made from a vinyl resin, which reportedly provides resistance to acids, alkalies and most solvents and other chemicals. It stays flexible at low temperatures and reportedly will not support combustion. It gives a surface which is easily kept clean by flushing with water.

This, of course, is not strictly a salvage cover, per se. Larger units may later be made of this material. Data on costs as compared with treated canvas have not been received.

Recently engineers at the Du Pont Company swung a paper-thin transparent sling under a pleasure car and raised it in the film completely off the ground. The film, called Mylar, is said to be one of several plastics which can do things heretofore accomplished by no other plastics. The film is said to be an excellent insulator, and resists chemicals and solvents. It may conceivably have application in the manufacture of salvage covers. At present, however, tests of specimen covers made by this company have not been completed in representative fire insurance patrols and fire departments.

Still another manufacturer has been producing plastic covers which are finding acceptance both with the fire service and salvage authorities, for special applications and for industrial and mercantile installations. The light weight of this and other plastic covers makes it possible to carry more of them on apparatus, and for users to carry them more easily then the conventional covers. The lighter weight more easily adapts them for inside operations, particularly where there may be perishables, or delicate, breakable products such as found on counters of chinaware and other stores.

Certain objections to these covers have been recorded, notably the subject-ability of some to extremes of weather, and a tendency to slip which makes them more difficult to carry and handle under some operating conditions.

In addition to the foregoing, various types of treated paper covers have been introduced. These are for the most part known as building papers and are procurable in small or large rolls. Among them are aluminum foil and reinforced waterproof papers of all types, as well as developments of the old familiar tar paper still carried by most salvage units. Their use, naturally, in fire salvage is limited to specific tasks, such as patching roofs or other openings. Although not essentially of the fire salvage family of facilities, they cannot be ignored.

This leads to a conclusion advanced by several authorities on salvage. It is this: They believe that, as in almost every other field of endeavor, science and American ingenuity and inventiveness will produce new materials for salvage covers of which may be adapted for salvage work and which will have a major bearing on the concept of protecting materials and stocks against injury or destruction by the elements, including fire itself.

Photo courtesy Underwriters Salvage Corps, Cincinnati

Here, salvage covers protect floor coverings and furniture against water, hot ash and debris, resulting from fire and fire extinguishment operations. Despite hot overhead fire, this loss was held to minimum. Note how newest covers are used on interiors.

Cover Specifications

To assist, when calling for bids for the two types of salvage covers now in most general use, the National Board of Fire Underwriters has issued the following specifications:

Size: Either 12x18 or 14x18 ft., tolerance 3 inches plus or 2 inches minus in either width or length, or both. Cloth to be cut 19 ft.

Cotton Fabric: To be of clean cotton, duck, free of knots, dropped threads or other weaving imperfections. The weave of the fabric or count of the warp and filling threads per inch and the strength shall be in accordance with the requirements of Federal Specification No. CCC-D-771.

Treated Cotton Duck Cover: Fabric to weigh not less than 11 ounces per square yard before waterproofing, and not more than 20 ounces per square yard after waterproofing. To be treated with a preparation that will produce a waterproof condition capable of withstanding tests hereinafter specified. The treatment to be such that the covers will not mildew, stiffen in cold weather, nor become tacky in warm weather.

Seams to be not more than two in number, and each seam to be sewed with two lines of stitches on lock-stitch machine with rotproofed and waterproofed thread. All seams to measure from ¾ to 1-inch between lines of stitches and to be of the "roll" type with edges turned under, and so treated as to prevent leakage at that point, as provided for in tests hereinafter specified.

All edges shall be hemmed by turning under 1½ inches of goods, so as to make three thicknesses of goods all around the edge of the cover.

Rubber Coated Cover: The finished weight of a cover frictioned both sides shall not be less than 24 lbs. nor more than 33 lbs. per cover. Fabric to weigh not less than 7½ ounces per square yard. The strength of the warp or filling shall be not less than 100 lbs. per inch of width in warp and 70 lbs. in the fill.

Covers frictioned both sides shall have a coating weighing not less than 7.5 ounces per square yard and not more than 12 ounces per square yard.

The rubber to be black, bloomed finish, without varnish or other wash. The first application or friction coat shall be calendered and penetrate into the interstices of the weave, showing through on the reverse side. The finished cover shall be free from surface imperfections.

These covers, as stored for use, will be so folded as to create many angles, corners and folds. The rubber coating must not crack, check or peel, due to this folding.

Seams shall not be more than two in number and must not be butted but must be lapped not less than one inch and are to be in the direction of the greatest length of the cover. All seams are to be cemented.

All edges shall be hemmed by turning back the fabric on itself for a distance of 1¼ inches and be cemented in place.

Grommets: The 12x18 ft. cover shall have 24 No. 3 spur brass grommets spaced two at each corner, five at each side and three at each end. The 14x18 ft. size shall have 32 of these grommets, spaced two at each corner, seven at each side and five at each end.

Grommet Reinforcements: All covers to be reinforced on the under side of the cover with a 7½-inch triangular piece of the same material as that used in body of cover so as to provide three thicknesses of goods for corner grommets.

Stencil: Covers are to be stenciled with the month, day and year on two opposite corners in 3-inch letters. Eight-inch letters designating Fire Department, Fire Patrol, or other organization, at direction of purchaser, to be placed at opposite corners.

Tests: Not less than 20 per cent of all deliveries to be tested as follows:

Covers to be picked at random and placed in a test rack hereinafter described, and there subjected to a depth of 5 inches of water over the seam for a period of four hours. No drop shall appear in the fabric, and leakage in excess of ¼-ounce of water at the seam during the test period shall be cause for rejection. If one cover fails, all covers in the assignment shall be tested.

Test Rack: To be made of two pieces of 2x4's each 16 ft. in length, with two cross pieces of the same material 2½ ft. long. Holds for thumbscrew bolts to be drilled 6 inches from ends of each 16 ft. piece, and 1½ inches in from ends of each 2½-ft. piece. In testing, cover is to be spread out on the floor, treated side up, and each end folded back 2 ft. Each side is then rolled up on one of the 16 ft. 2x4's to within about 15 inches of one of the seams, so this seam will be in the middle of the rack. The two 2½ ft. 2x4's are then fastened to the longer pieces by means of the thumb-screws and the rack and cover are raised off the floor high enough to permit observation of the test. Water to a depth of 5 inches is then poured into this trough. The folds at the ends of cover prevent water from spilling while test is in progress.

Lake Test: Using the test rack described above, place rack on top of bricks, or some other object, so as to raise rack to a height of about 8 inches off the floor. Spread cover out flat, treated side up, and press cover down over rack, with seam at middle, until cover is flat on floor, thus forming a rectangular trough, or lake basin, into which water is to be poured to a depth of 5 inches. After 24 hours, with cover resting on floor, there shall be no leakage.

Warranty: The contractor shall warrant all covers furnished under these specifications to be waterproof and to meet the test requirements, and shall agree to replace any cover which, within a period of 13 months after the month and year indicated by the corner stencil, develops defects resulting from imperfections in manufacturing or waterproofing.

Quotations: Quotations shall be understood as applying to these specifications.

Terms: Terms shall be 2% ten or net thirty days from date of shipment f.o.b. shipping point. Freight paid prices quoted on request.

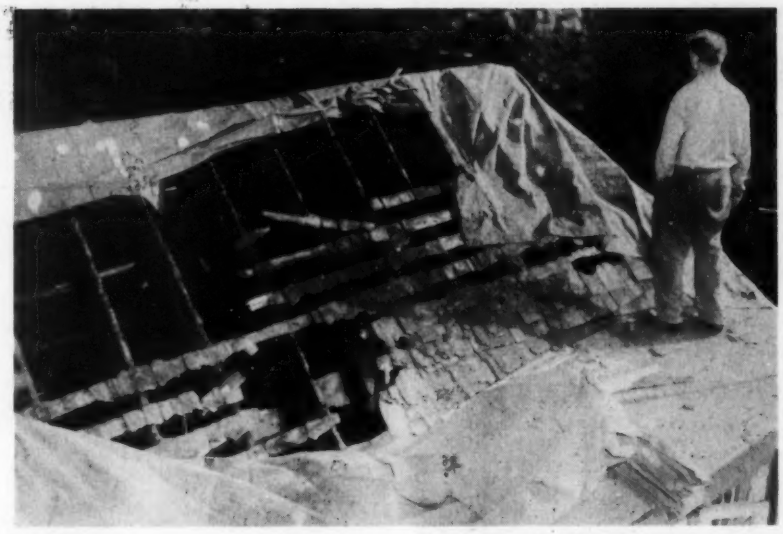


Photo courtesy Underwriters Salvage Corps, Cincinnati

The general practice is to relegate to outside, and other rough salvage work, covers that have seen their best days. Many salvage squads carry tar or other roof paper to close more limited openings.

Coast Chiefs Meet at Sun Valley

The annual conference of the Pacific Coast Inter-Mountain Association of Fire Chiefs was held at Sun Valley, Idaho, September 14-17 inclusive, with Chief J. K. Piercey, Salt Lake City, the President, presiding.

Attendance was up to average, and the isolation of the resort resulted in full attendance at all technical sessions.

An attractive program was arranged by Chief Edward Grenfell, of Portland, Chairman of the Program Committee.

The meeting got under way on the evening of Wednesday, September 14, with opening ceremonies, followed by the annual Memorial Services.

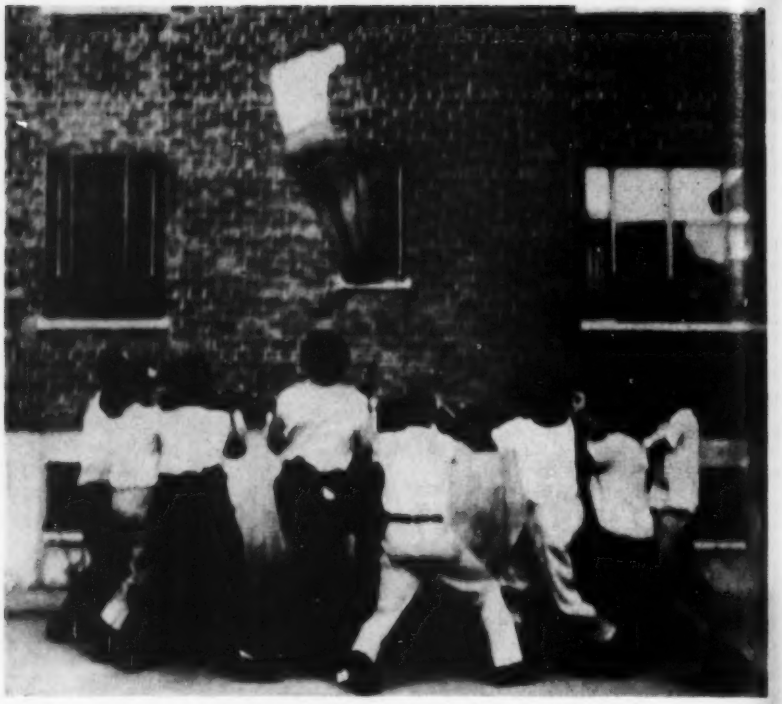
Thursday morning was devoted to technical papers, which included: "Urban Planning and Fire Protection," by Walter G. Wells, Engineer of the National Board of Fire Underwriters, San Francisco, Cal.; "Oil Fires," by Chief George R. McAlpine, Oklahoma City, Okla., and "Radiation Hazards," by Chief Otto Karg, National Reactor Testing Station, Idaho Falls, Idaho.

The Thursday afternoon session was devoted to papers by Chief K. E. Klinger, of Los Angeles County, Cal., on "Operation Firestop" and Fred Shepperd, Editor of FIRE ENGINEERING, on "Is the Fire Service Keeping Abreast of Fire Hazards?" These were followed by "Alarm Box vs. Telephone." The moderator of the panel discussion was Chief William J. Taylor, of Burbank, Cal., and the members thereof were Ray A. Echols, Fire Alarm Superintendent, Phoenix, Ariz.; Charles R. Clough, District Sales Manager, Pacific Telephone and Telegraph Co.; Herbert Raines, Assistant Chief Engineer, National Board of Fire Underwriters, and Al. Theurich, Sales Engineer, Safa Fire Alarm Division, Fyr-Fyter Co.

All of Friday, September 16, was devoted to the technical program. Joe R. Yockers, California State Fire Marshal, discussed "The Value of Statistics in Fire Prevention; John W. Tucker, of

(*Continued on page* 1125)

Life net in position; would-be suicide poised at eighth floor window ready to leap.



Life net crew braces for the impact.

Net Foils Suicide Attempt

The facts concerning this particular incident are worthy of special mention because they disprove some pet theories of fire fighters that life nets cannot be satisfactorily used where the jump or fall is greater than five or six stories, and where the person falling or jumping does not land in the approved position. The incident also sets at rest the belief that only a competently trained team of professionals can operate a life net effectively under emergency conditions. In this particular case the entire operation was directed by trained fire fighters, albeit over half of the net holders were novices, pressed into service for the occasion.

On August 1, last, at 6:52 P.M. Ladder Co. 5 of the Newark, N. J., Fire Department, Captain James Nolan, commanding, and Rescue Squad 1, Captain McLaughlin in charge, responded to 308 West Kinney Street, Newark, N. J.

Upon arrival they found a man, Laurence Yuden, age 45, about to jump from an 8th story window of a 12-story apartment house. Yuden weighed approximately 160 pounds and was about 5 feet, five inches in height.

Captain Nolan immediately ordered the company's life net placed in position under the window ledge on which Nolan stood, and Captain McLaughlin with Firemen Peter Cummings and Clarence Reed of the Rescue Company ascended to the 9th floor to effect rescue from above.

Firemen Fred Boehringer, Charles Deutsch and Edward Dennis of Ladder 5 and Fireman Arthur Knispel of the Rescue unit manned the net, together with policemen and civilians who were pressed into service for the emergency.

Before fire fighters could reach him from above, Yuden jumped, feet first. But the impromptu crew were alert and got the net under him. Despite the drop, the victim was caught safely—neither the handlers nor the net itself were injured.

The outcome is of special significance when it is considered that a man of Yuden's weight generates kinetic energy in the amount of 12,960 foot-pounds upon jumping from an elevation of 80 feet, or 8 stories.

This kinetic energy is the work which the falling body is capable of performing against a retarding resistance (in this case, the flexible net and the men who are holding it) before being brought to rest.

The net used in the rescue was inspected by the manufacturer after the incident and it was found no failures had resulted anywhere. It was returned to Ladder 5 where it is now in service.

This is the second life net rescue made by Captain Nolan, a member of the department for 14 years. He puts his men through life net training every two months and attributes the excellent work in catching Yuden to this schooling.

On August 2, 1955, James T. Owens, director of the Newark Fire Department, and Fire Chief Harry J. Sommers, commended Captains Nolan and McLaughlin and the members of Ladder 5 and Rescue 1 for the proficient manner in which they executed their assignments.

Baled Paper Fire Causes $100,000 Damage

A stubborn fire in a 100 foot square storage shed of the Container Corporation of America in Vernon, Calif., destroyed 5000 bales of scrap paper and cardboard on Sept. 19.

The flames destroyed the shed, a huge trailer loaded with 10 tons of rolled cardboard, plus 11 automobiles parked nearby. Intense heat melted windows of five of the cars, five others were blistered on the outside and the tops of two damaged when steel chemical drums fell on them.

The drums contained paint thinner and, as they exploded, added to the fire fighting hazards. Exposures included a furniture factory and a steel plant.

Vernon fire equipment was under command of Acting Fire Chief Vince D'Amico and he was assisted by additional units sent via mutual aid by the Los Angeles City and County departments, plus apparatus from Huntington Park and Maywood.

The fire fighters worked for two hours before the blaze was pronounced under control, but they said individual bales would continue to smoulder for days.

Plant manager W. P. Quinn said the fire damaged or destroyed 2500 tons of scrap which was awaiting conversion into paper and that loss would amount to at least $100,000.

PAUL DITZEL

Dangerous Brush Fire Checked

A fast-moving brush fire swept down from the Santa Monica Mountains on the afternoon of August 28, endangered a $1,000,000 ranch and threatened scores of homes in the Western San Fernando Valley before 300 Los Angeles City and County firemen brought it under control after a six-hour battle.

The fire broke out at 1:40 p.m. on the 40-acre ranch of Atze Taconis, a song writer, who uses a $10,000 hand-carved piano when he is not tending cattle.

Taconis told investigators that he had started his water pump going. It apparently shorted out and started the fire. He tried to beat down the flames with a hand extinguisher, but they got away from him after burning down the pump house.

The fire burned quickly north from the ranch in county territory toward the city limits along Mullholland Drive.

County Fire Department dispatchers at Battalion 5, Malibu headquarters, received the alarm at 1:41 p.m. and started all available apparatus and crews in the area rolling toward the fire.

The Van Nuys Signal Office of the L.A. Fire Department recorded the alarm two minutes later and Mountain Patrol units as well as two engines and two tanks were responded.

Sweeping north from the Taconis ranch, the flames surrounded the house, but then moved on. At Mulholland, a firebrand leaped 400 feet across the road and, before crews could attack, the fire was burning east toward Corbin Canyon.

The Qua-Leilani Ranch was threatened from both the south and west. At one point flames were within 200 yards of a $350,000 building containing 1,000,000 nursery stock slips. Workers turned on sprinklers on the ranch grounds, while employees moved out eight horses from a corral in the path of the flames.

Among the homes that were threatened was the ranch-style building of Comedians George Burns and Gracie Allen high on the slopes south of Ventura Blvd., in the Woodland Hills section. The couple were not at home, as neighbors led two horses to safety.

Tank wagons were spotted around all threatened homes.

At one point on the eastern front, several volunteers were nearly trapped when the flames cut around behind them. They lay beneath a rig and escaped injury.

Hose Wagon 39 of the city fire department was scorched by the blaze, but its crew was uninjured.

Capt. Ray Smith of County Engine 7 reported the flames were climbing up the tailboard as he and his crew raced ahead of the fire on a narrow, rutted mountain road.

The County Fire Department dis-

(*Continued on page* 1109)

Snapped at the I.A.F.C. Conference Held in Omaha, Neb.

Photos by J. B. Davies

Left: Retiring President C. Gray Burnett and Mrs. Burnett. Center: Chief William Fitzgerald, President, I. A. F. C.; Governor A. B. Langlie, Washington; and Chief Wayne Swanson, Rockford, Ill., First Vice-President, I. A. F. C. Right: Chief and Mrs. Donald S. Charles of Charlotte, N. C. Chief Charles is the newly elected Second Vice-President.

Left: George J. Richardson, Secretary-Treasurer, International Association of Fire Fighters (left) and Chief Stuart Potter, Greenwich, Conn. Center: Chief and Mrs. Newton Wheeler of Miami, Fla., with quilt made by Mrs. Clyde Canning, won as a prize for securing the most new membership. Right: "Dan and Kate" Tierney, Arlington, Mass. Dan is an ex-president of the I. A. F. C. and its long-time Secretary-Treasurer.

Left: Chief L. C. Canning, Chairman of the Exhibit Committee, and Mrs. Canning. Center: Former I. A. F. C. President Ray Tiller, Waterloo, Ia., and Mrs. Tiller. Right: Chief Wayne Swanson, Rockford, Ill., First Vice-President, I. A. F. C. and B. Richter Townsend, new Secretary-Manager, relax for a moment.

A few seconds after this picture was taken, an explosion, apparently of flammable solvents, blow out both front and rear walls of the third floor of this building at Philadelphia. One fireman lost his life and several were injured by falling bricks and debris.

Fireman Killed When Lacquer Explodes

Fireman Arthur Mumbaur of Engine Co. 17, Philadelphia Fire Department, was killed and ten other fire fighters injured, one seriously, when an explosion in a burning building at 603-05 N. 35th Street, Philadelphia, ripped out the third floor walls and buried the firemen under tons of debris.

The explosion came after the fire in the three-story plant of the Silco Products Company was reported under control. It came practically without warning and according to Deputy Commissioner and Chief of Department, George E. Hink, was caused when flames reached lacquers and solvents stored on the third floor.

At the moment of the blast, many fire fighters were either in the building, on the roof or on the street in front of the plant. It is considered providential that more of them were not victims. When the blast occurred, the front and rear walls burst outward, dumping brick, mortar and steel among the crews working. Many escaped injury by leaping behind fire equipment located in the street. One, fleeing for his life, was snapped by Philadelphia Fire Department Photographer, Lieut. Bob Kennedy, whose outstanding pictures have been featured repeatedly in FIRE ENGINEERING. This photograph, which is reproduced on the cover of this issue of FIRE ENGINEERING is one of the most unusual taken in years.

Neither the cause nor the extent of property damage has yet been determined. Late reports concerning the injured fire fighters state that all are expected to recover. Lieut. Daniel Kerrigan, who received a broken neck and was placed on the critical list is reported in satisfactory condition.

Hurricane Blessing and Bane to Virginia Firemen

Firemen from four communities fought a long, hard battle in drenching rain and near-hurricane winds during Hurricane Ione September 19th, last, to prevent a major fire disaster in Kenbridge, Va.

The strong winds lashed the flames, which started in a shed adjoining the frame fertilizer plant and a wholesale grocery warehouse, about 10:45 P.M. Muffled explosions spread the fire which picked up by the wind, spread through the plant and into the grocery almost before all the mobilized fire forces could get into action.

Kenbridge Fire Chief Callis called for aid from Blackstone, Victoria and South Hill as soon as he sized up the situation and, although these towns sent equipment, they could do little but prevent extension of the blaze to surrounding property, including tobacco warehouses on "tobacco row." They did manage to save the fertilizer office building. In this they were aided by the three inches of rain that soaked the area during the storm.

Total property loss exceeded $250,000. —Thanks Chief FRANK CALLIS.

Koppers Shows New Tank Fire Control Method

Flames raging in an 8,000 gal. tank ot coal chemicals were extinguished in less than thirty seconds by "drowning" them in the cooler chemicals from the bottom of the tank, during September demonstrations before fire department, insurance and industrial officials at Kobuta, Pa., and safety engineers of Koppers Company, Inc.

A tank of crosote oil was ignited and twenty-seconds later the fire was out when unignited chemicals at the bottom of the tank were circulated to the top so quickly that the temperature was reduced below the flash point of the liquid.

The demonstration reportedly climaxed two years of development by Koppers of a system of controlled agitation not previously adapted to fighting fires in coal chemical tanks, which was developed following experimentation previously done in the petroleum industry, by J. L. Risinger of the Socony-Vacuum Oil Company.

The demonstration showed the versatility of the new fire control technique. Agitation of contents of the tank was accomplished by several different methods: largely compressed air and nitrogen and agitation by recirculation of the liquid in the tank itself.

In a demonstration at its Kobuta Plant, near Monaca, Pa., Koppers Company, Inc., demonstrated a new method of tank fire control. Based on agitation of the chemical within the tank, the new method checks flames by rapidly circulating cool liquid from the bottom of the tank to the surface. This photograph, taken during the demonstration, shows a plant official opening the valve to begin agitation of the tank's contents by means of compressed air.

"Best hose ever" Chief says of

EUREKA Multiple-Woven with Dacron Filler Cords

That's the considered verdict of the Chief* of one of the first fire departments to acquire this lighter, stronger, more flexible hose. After nearly five years' use, he still enthuses, "I used to swear by Eureka's all-cotton multiple-woven, rubber-lined fire hose. Now, woven with Dacron filler cords, it's the *best hose ever!*"

It's not hard to understand his enthusiasm when you consider that a hose gains both its *strength* and *flexibility* from the filler (circular) cords. Also, the smaller, stronger Dacron filler yarn, which replaces about half the cotton yarn in the jacket, *weighs only one-third as much!* Imagine, then, all these advantages of Dacron filler yarn combined in a hose woven on Eureka's unique looms that interweave *all plies* into a single jacket that leaves no space to harbor water or dirt!

Your Eureka representative will gladly show you this "best ever" fire hose. Write or wire today. Remember, he is a fire hose specialist!

*Name on request

Note how criss-crossing vertical cords tie all plies into a single jacket.

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Rubber-Lined Fire Hose

195 Hudson Street • New York 13, N. Y.

Division of United States Rubber Company

new style! new comfort! new power!

new Internationals!

Functionally styled for practical good looks!

Here are the new INTERNATIONALS . . . a great new truck line from *any* point of view! Their clean-lined styling is trim and functional — designed to take the rough going of truck work without excessive repair costs.

Driver designed for real comfort!

They give you real comfort, too! They're driver-designed to let you work longer without fatigue. Loaded with performance and handling features that make hauling jobs easier.

More usable horsepower for BIG money savings!

These great INTERNATIONAL trucks offer more horsepower — develop their power for sustained operation at lower, more economical engine speeds. They're *all truck* with no passenger car engines or components asked to do a truck job. That saves you the BIG money — the over-the-years operating and maintenance money. Drive them today, at your INTERNATIONAL Dealer or Branch.

New INTERNATIONAL "S-line" includes light, medium and heavy-duty models from 4,200 to 33,000 lbs. GVW, with 10 gasoline and LPG engines, every modern truck feature.

You relax in REAL comfort in Comfo-Vision cabs. Comfort-angled steering wheel. Low hood for closer view ahead. "Quiet-ride" roof lining, draft-free doors. Choice of 24 solid and optional two-tone exteriors. Optional deluxe cabs have color-keyed interior, chrome trim.

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INTERNATIONAL® TRUCKS

All-Truck Built to save you the BIG money!

Motor Trucks • Crawler Tractors • Industrial Power
McCormick® Farm Equipment and Farmall® Tractors

Observe SAFE DRIVING DAY, Thursday, December 1 . . . Drive Carefully Always

Scaling Ladder Used in Rescue

Once again, acrobatic fire fighters have demonstrated the usefulness of pompier, or scaling ladders in furthering rescue operations. These ladders, ordered on all New York Fire Department ladder trucks in 1884 by Chief Eli Bates, following the fatal World Building fire of Jan. 31, 1882, have been discarded by some departments and viewed with disfavor by others. But New York has continued to carry them on its apparatus, and to use them in its training.

The fire for which, as the papers termed it, "the fish-boned shaped ladder" was used, involved a ninth floor suite in the 15-story Madison Hotel, Madison Ave., at 58th St., Manhattan, on Aug. 29 last. The blaze itself was nothing spectacular and the damage to the building and contents termed "slight," but it was a hot, smoky fire and trapped Mrs. Eugene Ward, 47, of Chicago in her ninth floor room, where it appeared that she was ready to jump to the street.

Ladder 2, which with Engine 8 was the first due from their station at 165 E. 51st St., raised its 85-foot metal ladder to its limit, but it came a floor short of the screaming Mrs. Ward, choking in the smudge from the fire involving another suite down the hall from her own.

While firemen and spectators on 58th Street yelled "Dont jump," the crew of Ladder 2 under Acting Lieut. M. P. Cox separated, Fireman Gilbert W. O'Neil climbing the 'big stick' even as it was being placed; Acting Lieut. Malachy Cox going through the building to the tenth floor over the window occupied by Mrs. Ward. Meanwhile Chief C. J. Freeman and his aide, Fireman F. L. Wilkins, Batt. 8, and Chief A. H. Eckert and his aide, Fireman T. E. Paulson of Batt. 9, had arrived, followed quickly by Deputy Chief O. H. Knockenhauer of the 3rd Div., and the crews of Ladder 16 and Engines 23, 39 and 65.

Chief Knockenhauer and other fire fighters made a desperate effort to reach Mrs. Ward by way of the inside hallway but all were affected by smoke and fumes. The Division Chief and five firemen were hospitalized by smoke poisoning and one other fireman by cuts.

Using a 14-foot scaling ladder, Fireman O'Neil reached the frightened Mrs. Ward, calmed her and passed up the ladder to Cox who dropped down it to join his partner. They kept the woman near the window but realized the near-impossibility of carrying her down the slender scaling ladder, knowing too, that their mates would knock out the fire in the adjoining suite, down the hall.

It wasn't long before this was done and firemen led Mrs. Ward through the building to the outer air where she was given oxygen—along with a number of her rescuers. She was uninjured.

Fire Commissioner issued merit certificates to nine officers and 31 firemen for their operations at this fire. In addition, Fireman O'Neil was awarded a $100 prize by the New York "Journal American."

Will Direct Destinies of Signal Association

The officers of the International Municipal Signal Association, elected at the recent Rochester Conference, Sept. 26-29, last, are shown above. They are (Seated, l. to r.) L. H. Soare, Supt. Electrical Dept., Oakland, Cal., 1st Vice-President; Edwin C. Denstaedt, Director of Communications, Police Department, Detroit, Mich., President; A. L. O'Banion, Supt. Fire Alarm Division, Boston, Mass., Retiring President; Chester B. Kern, Supt. Police & Traffic Signals, Buffalo, N. Y., 2nd Vice-President; (Standing l. to r.): Chas. S. Downs, Altoona, Pa., Treasurer; Armand Senay, Supt. Fire Alarm, Holyoke, Mass., Member Exec. Comm.; Everett Zeh, Supt. Signal Control, Schenectady, N. Y., Committeeman; Frank Zavrel, Supt. Fire Alarm, Elmont, N. Y., 3rd Vice-President; Irving Shulsinger, New York, Secretary.

A rescue in the making at the Hotel Madison, Manhattan, N. Y. C., Aug. 19, 1955. Fireman G. W. O'Neil (Ladder 2, quiets panicky tenant on ninth floor, while Acting Lieut. Malachy Cox prepares to descend scaling ladder from floor above to aid his mate. Victim, Mrs. Eugene Ward, was reached via 85-foot metal aerial, plus 14-foot Pompier, which was then raised to bring down fireman from above. Nine officers and 31 fire fighters received merit certificates.

Volunteer Sentenced for Fire Setting

Charles Stuart, 17, a Glenbrook, Conn., volunteer fireman, was sentenced to an indefinite term in the Cheshire Reformatory on September 28, by Judge Frank Covello, of Superior Court, Bridgeport, for setting fire to a Glenbrook warehouse on July 7.

Sentence was imposed on Stuart after he pleaded guilty to burning a building owned by the DeLuca Construction Company. The warehouse and its contents, consisting of popcorn containers and cartons, were destroyed at a loss of $50,000, according to Asst. State's Attorney Otto J. Saur.

Daniel E. Ryan, counsel for Stuart, described the defendant, a junior member of the Glenbrook Company, and termed him immature. Asserting that the youth set the blaze because of a desire for excitement, Mr. Ryan asked Judge Covello to impose a suspended sentence and probation so the defendant could receive psychiatric care.

Judge Covello expressed the belief that Stuart's act was not performed on the spur of the moment, but apparently was well planned.

"He must receive some form of punishment and discipline, and he can undergo psychiatric treatment in the reformatory," Judge Covello declared.

After Stuart set fire to the building, Mr. Saur said, he rushed to the Glenbrook fire station nearby, sounded the alarm and joined fellow firemen in fighting the flames. Stuart was arrested at the scene of the blaze. TOM MAGNER

Underwriters' Laboratories Conduct Water Fog Tests

In the recent years there has been a considerable increase in the use of finely divided water, discharged from spray nozzles or automatic sprinklers, for extinguishing certain types of fires. Since water in the form of small drops appears to be very effective on many fires, this development has become of increasing importance to both the fire services and fire insurance interests.

Recently, Underwriters' Laboratories, Inc., in a report prepared for the National Board of Fire Underwriters, describes the fundamental factors involved in fire extinguishment by means of water sprays. According to the study, tests show that fire extinguishment is due primarily to smothering effects of water vapor produced by evaporation of the water drops. Cooling effects of the water supply are also important.

The laboratory-scale tests were run to determine the droplet size distribution in experimental sprays and then to determine the extinguishing effects of water sprays of known droplet size.

According to the National Board, many successful applications of water spray in putting out fires had been reported previously, but data on the fundamental processes involved in extinguishment and the factors which influence them were somewhat meager. In order that this method of attacking fires may be employed most advantageously and its limitations understood, a knowledge of the way in which water droplets act to put out various fires is essential.

It is generally recognized that fire is a chemical reaction proceeding with the evolution of heat and light. The most common unwanted fires involve reactions between a substance and the oxygen of the surrounding air. Two essential requirements for the initiation and maintenance of ordinary combustion are a fuel and an adequate supply of oxygen. The combustion processes will cease and the fire be extinguished if either reactant is no longer present in sufficient proportions.

The extinguishment of fire by removing the fuel is not always practical, although in some circumstances, such as closing a valve on a burning gas line, it may be the simplest method.

Curtailment or depletion of the oxygen supply is the basis of many fire fighting techniques, commonly referred to as smothering or blanketing a fire. In order to put out a fire, elimination of all oxygen is generally not necessary; flaming combustion of most common materials can no longer continue after oxygen is reduced to 12 to 15 per cent by volume.

Fires can be extinguished by diluting the oxygen content of the surrounding air with an inert gas or vapor. Carbon dioxide and nitrogen are commonly used for this purpose as are the various vaporizing extinguishing agents.

Similarly, it is well known that water vapor or steam may be used under appropriate conditions to dilute the oxygen in the atmosphere so as to suppress fire. In extinguishing fires by smothering, sprays of finely divided water as a source of water vapor have certain advantages.

In addition to fuel and oxygen, heat is necessary to start and maintain a fire. A combustible substance must be heated to its ignition temperature if combustion reactions are to proceed. Once started, the reaction is usually maintained by the heat liberated by combustion. If the seat of a fire can be cooled to temperatures below the ignition temperature, the fire will be extinguished. Sprays of water droplets apparently have certain advantages as a cooling medium for fire extinguishment.

Nineteen different spray nozzles or combinations of nozzles were tested on

(*Continued on page* 1117)

Unusual accident injures Chicago Fire Marshal Petersen

On August 17 last, Chief Fire Marshal Albert Petersen of the Chicago Fire Department, was seriously injured in an unusual accident attendant upon the final cleaning up at a 4-11 Chicago stockyards blaze.

As the illustrations, taken by Stanley Helberg, reveal, firemen were engaged in toppling weakened walls following the fire's control, when one section fell outward, driving the wall ladder being used by fire fighters as a ram onto Chief Petersen, pinning him against a Chicago Squad Car.

The Chief was quickly removed from his pinioned position and hurried to the hospital where his injuries were found not to be critical.

The sequence of pictures shows (top) firemen pushing at the wall with the chief in the rear between ladder and apparatus; (center) the scene immediately after the collapse, and (bottom) the removal of the Chief Marshal on a stretcher.

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FOG NOZZLE

★ Resilient rubber bumper for protection against damage

★ Adjustable through all angles of fog

★ Positive stream positioning — by feel or sight. Clicks into fog patterns or straight stream

★ Swivelling "Rocker Lug" base — handle always on top

★ You too will agree — finest nozzle of its type

★ Corrugated no-slip grip

★ High gallonage

★ Easy pattern indicators

★ Akron quality ball shut-off

★ Man-size handle

PERFORMANCE DATA
at 100 P.S.I. Nozzle Pressure

STYLE	SIZE	NARROW FOG GPM
1209	1"	24 GPM
1218	1½"	95 GPM
1219	1½"	125 GPM
1229	2½" P.P.	250 GPM

AKRON BRASS

FIRE FIGHTING EQUIPMENT

Akron Brass Mfg. Company, Inc. • Wooster, Ohio

FALSE ALARMS

Reflections

A backwoods mountaineer found a mirror which a tourist had lost.

"Well, if it ain't my old pappy," he said as he looked in the mirror. "I never knowed he had his picture took."

He took the mirror home and sneaked it up into the attic to hide it. But his actions did not escape his suspicious wife. That night while he slept she slipped up to the attic and found the mirror.

"Hum-um," she exclaimed, looking into it, "So that's the old hag he's been a-chasin!"

Perseverance

A fellow went to a picnic all by himself. But he was lucky, for when he got there he met a girl, also unattached, who had a shoe box full of lunch. They had some sandwiches and eggs and then rowed out on the lake. In the evening when the picnic was over, he offered to take her home.

"Oh, you can't do that," she said, "because I live a mile from the end of the trolley line."

"I'll take you home," he insisted. "I haven't anything else to do anyhow."

So they took the trolley and at the end of the line they started to walk. They walked about half a mile when the fellow stopped.

"Give me a kiss, will you?" he asked.

"Okay," she said.

But since she was twice as tall as he was he couldn't reach her lips. Luck was with him again for they were standing in front of an abandoned blacksmith shop. They went inside and the fellow got up on the anvil and kissed the girl. Then they started walking again. About half a mile later, the fellow asked for another kiss.

"No more kissing tonight," she said.

"Well, if you aren't going to kiss me," he said, "I guess there isn't any sense in my carrying this anvil any farther."

The nice old lady smiled at the little girl who had been left in charge of the cake shop.

"Don't you sometimes feel tempted to eat one of the cream puffs, my dear?" she said?

The little girl was quite shocked. "Of course not. That would be stealing. I only lick them."

An old maid was asked what she desired most in a husband—brains, wealth, or appearance. She snapped back, "Appearance, and the sooner the better."

"We remodeled the place from an old fire station!"

Obedient

Visiting Nurse: Did you drink three pitchers of water and stay in bed like I told you?

Patient: I drank the water.

"I don't mind washing dishes for you," wailed Elmer. "And I will even sweep the floors, but I ain't gonna run no ribbons through my nightshirt just to fool the baby."

Wife: "Do you think getting drunk is the way to remember our wedding anniversary?"

Husband: "Who'sh tryin' to remember?"

Doctor: "What you need, my dear young lady, is a little sun and air."

Sweet Young Thing: "Why, Doctor, how dare you! Why, I'm not even married."

Pa: "It is 2 A.M. and time Jane's boy friend went home."

Ma: "Now pa, remember how we used to court."

Pa: "That settles it, out he goes."

A Kentucky Colonel always closed his eyes when he took a drink. When questioned concerning this habit he readily explained.

"The sight of good lickah, suh," he said, "always makes my mouth watah, suh, an' I do not like to dilute my drink, suh."

"In America," the G.I. explained to the Russian, "I can go right into the President's office and tell him what I think of him . . . Eisenhower, himself.

The Russian replied: "So what? In Russia I can go right into Bulganin's office and tell him exactly what I think of President Eisenhower."

A visitor at a golf club paid his green fees and fixed up a match. At the first tee he made a wild swing and completely missed the ball.

"By George!" he exclaimed. "It's a good thing I found out right at the start. This course is at least two inches lower than the one I usually play on."

"Any big men born around here?" a tourist asked a villager in a superior tone.

"Nope," responded a native, "best we can do is babies. Different in the city, I suppose?"

A wolf is a guy who loves life, enjoys liberty and the happiness of pursuit.

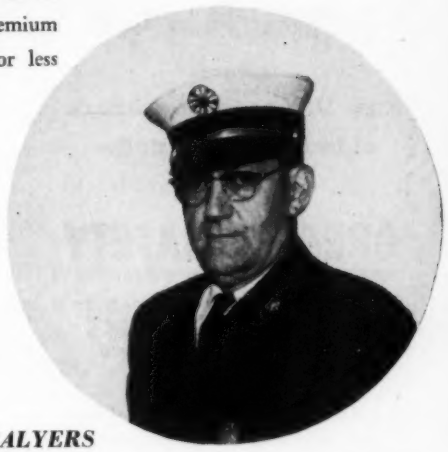
Many a train of thought goes wrong because it has too many loco motives.

LESS THAN 5′ OF WALL SPACE GIVES GREATER PROTECTION

TO THE 64,452 RESIDENTS OF COVINGTON, KY.

Last month SAFA installed one of the first of its new 10 circuit Compositrols in Covington's Central Office. Chief Salyers had a problem. Space was at a premium and needed to be utilized to better advantage. That, of course, was more or less incidental to the basic problem of affording greater and more efficient signal control to Covington's citizens.

SAFA had the best answer to both problems. That is why Chief Salyers chose the new Ten-Circuit Compositrol, Model 4302-R-A, B. In his own words: "The problems of providing greater protection, more efficiently, and in less space than our outmoded Central Office occupied, have been perfectly solved with SAFA's new Form 4 Compositrol. Beside its dependability and simplicity of operation, is its compact design, which released much needed space to other equally practical needs."

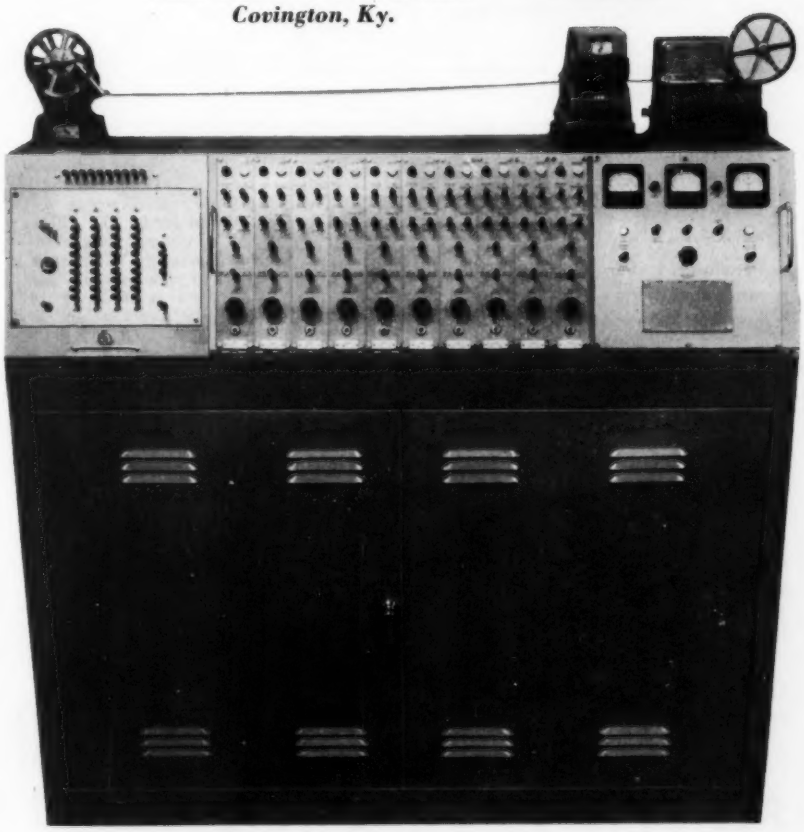


FIRE CHIEF W. B. SALYERS
Covington, Ky.

Designed for maximum efficiency in a minimum of space, the 10 circuit Compositrol utilizes a standard closed series fire alarm circuit in which current flows continuously. Signals are produced by interruptions in the Supervisory Current. Full supervision of each circuit is provided by a line supervisory relay, affording both visual and audible indication of a prolonged opening of the circuit, or a serious drop in the line current. Batteries within the cabinet supply supervisory current in the event of A-C failure. A TVR relay provides automatic termination of high charge imposed automatically, or manually.

For maximum control efficiency in a minimum of space Safa's Multicircuit Compositrol is the answer.

Write today for details, and the good news about cost.



SAFA'S NEW COMPOSITROL MODEL 4302-R-A, B
(Register, Time-Stamp and Take-Up Reel are extra equipment)

SAFA ALARM DIVISION *The Fyr-Fyter Co.* **ORRVILLE, OHIO**

CM-7

(Replaces Carbon Tetrachloride)

New Vaporizing Liquid Fire Extinguishing Agent offers New Values for the Attack of Incipient Fires and—

GREATER SAFETY FOR FIREMEN!

- CM-7 inhibits the formation of carbon monoxide when applied to fire, producing instead carbon dioxide.
- Phosgene gas cannot result from the application of CM-7 to a fire.
- CM-7 produces 10% to 20% more fire-stopping vapor than carbon tetrachloride.
- CM-7 boils at 152.5°F, vaporizes quickly.
- Penetrates embers of Class A fires more deeply than any other commonly used vaporizing liquid.
- Leaves a residual fog over the fire area that guards against flashback.

CM-7 is an entirely new chemical. It was invented by I. N. Beall for the Beall Research and Engineering Corporation after approximately two years of intensive research and laboratory tests. Safer CM-7 is more effective in stopping fires while small than any other commonly used extinguishant.

CM-7 is marketed exclusively by RED COMET, INC., Littleton, Colorado, in their "fast action" fire extinguishers.

For additional information, write to

RED COMET, Inc.

Red Comet Building • Littleton, Colo.

Member: National Fire Protection Association

A product of
Beall Research and Engineering Corporation

The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

LICENSING OIL BURNER INSTALLATION MECHANICS

THE discussion in this Round Table is a continuation of that which appeared in the September and October issues on licensing oil burner installation mechanics.

The generous response from our readers made it necessary to carry the discussion over to this issue and to the December issue as well.

Readers are invited to participate in this discussion. Address replies to Round Table Editor, FIRE ENGINEERING, 305 East 45th Street, New York 17, N. Y.

Discussion of the Topic

William C. Garvin, Chief, Yonkers, N. Y.: Oil burner installation mechanics are licensed in Yonkers.

Applicants are given a written examination. Their papers are corrected and marked by the Combustible and Boiler Inspectors.

As a result of licensing, these mechanics have to prove that they are qualified to render the service for which they are being paid. Then in the City of Yonkers, they are required to post a bond for $2,500. This is somewhat of a control over the work done. Consequently, a margin of safety inures to the person for whom the installation is made. Furthermore, after the installation is made, it is inspected and approved or disapproved by the Combustible and Boiler Inspectors. There is an annual fee of $25.00 for licensed installers.

Maurice K. Clark, Chief, Wilmington, Del.: Holders of the following licenses are permitted to install oil burners: Heating and General Piping, Plumber, Contractor, Sub-Contractors, Electrician.

I definitely believe that all applying for a license should be examined by a Board before the license is granted.

Of the above, only the plumber is required to pass an examination, this examination covering, for the most part, plumbing only and the Sanitary Code. The license is issued by the Clerk of the Council.

We have a Board of Plumbing Examiners, who examine plumbers before a license is issued. I believe in the appointment of a Board to examine all mechanics who desire to install oil burners. In our present setup, with the exception of plumbers, any individual who has the fee can secure any of the above-mentioned licenses.

Licensing alone is not adequate. Examination by a competent board will determine if a mechanic is fully qualified to properly install oil burners. This would eliminate the frequent re-inspection of oil burners by the inspectors of our Fire Marshal's Office. The work being completed by competent mechanics would then require only one inspection before approval of permit for installation.

John V. Stapleton, Chief, Boston, Mass.: Oil burner installation mechanics are licensed here in Boston.

The local fire chief approves their fitness, and then a Certificate of Competency is issued by the State Fire Marshal.

Licensing of mechanics would result in reduction in number of fires from faulty installations, and an ultimate saving of life and property.

Frank H. Burns, Chief, Grand Rapids, Mich.: All heating contractors are licensed.

Applicants are examined by a Board of Heating Examiners consisting of eight members, with six members being from the trade, one member from the Building Inspector's office and one member from the Fire Department.

The licenses are issued by the Building Inspector's Office, but a copy of each license is kept in the office of the Fire Inspection Bureau. In this way, we have a better enforcing policy.

Our department has a full-time heating inspector and all new heating installations are inspected. Since 1949 we have kept a record of heating installations; and faulty installations have decreased from 29 per cent in 1949 to 5½ per cent in 1954. We know that many potential fire hazards have been eliminated by our inspection services.

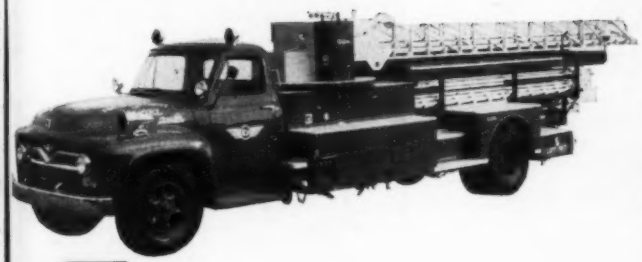
C. C. Styron, Chief, Atlanta, Ga.: We do not license oil burner installation mechanics in Atlanta.

I believe this should be done and that a special advisory board of the Department of Heating and Ventilat-

HERE ARE THE QUESTIONS

1. Are oil burner installation mechanics licensed in your city?
2. If not, do you believe they should be?
3. If licensed, who determines their fitness? Who issues the license?
4. If not licensed, who do you feel should do the examining and issuing of license?
5. What benefits do you believe accrue from licensing these mechanics?

... it's what they wanted
... it's what you need



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COMMERCIAL Aerial Ladder

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A quality aerial ladder at a popular price

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Naturally, fire services all over the United States welcomed the announcement of the new Seagrave Commercial Aerial because the ladder is ALL SEAGRAVE and has all the operational features of the Seagrave standard aerial. The saving in cost to you is made possible by building the 65-foot ladder on a commercial truck chassis.

This is the aerial ladder you have wanted for so many years. It is here NOW. . . . Mail the coupon today for complete information.

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We are interested in your new aerial ladder.

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ing should do the examining and issuing of licenses.

Licensed mechanics would be familiar with approved standards of installation and, as a result, fire hazards would be reduced.

We have not found it necessary to set up the necessary system of licensing these mechanics in Atlanta because only about 2 per cent of our installations are oil burners. However, we feel that all mechanics installing, maintaining or servicing any kind of heating equipment should be licensed.

James P. Warwick, Chief, Knoxville, Tenn.: Oil burner installation mechanics are not licensed here in Knoxville.

We believe a Board of Licensers and Examiners should be set up by the City Council and that the Fire Department should be represented on the Board but should not have to make the decision as to who will be licensed. This would place them in the dual position of saying who shall do the work and then enforcing the ordinance. We believe the Building Inspector, Electrical Inspector, Boiler Inspector and Smoke Bureau should be represented on the Board. Perhaps none of these persons should have a vote, but more or less serve in an advisory capacity.

We feel that under such a setup, better installations would be made and the public would be better protected.

We have had no trouble with the larger and reputable companies. They have trained mechanics, most of them factory trained, and they do a good job of installation. We have had trouble from time to time from the one-man companies who do the selling, installing, etc., and we have had trouble from fly-by-night companies. We feel all of this, or most of it, could be eliminated by licensing and supervising installation mechanics.

Walter G. Strickfaden, Chief, Columbus, Ohio: Each company making an oil burner installation is required to have licensed mechanics and to take out a permit to install.

The Board of Heating Examiners tests the candidate for fitness, and licenses are issued by the City Auditor.

Licensing of oil burner installation mechanics helps to eliminate bootleg installations by inferior mechanics. This, in turn, tends to eliminate hazards due to faulty or improper installations.

William M. Daly, Fire Commissioner, Buffalo, N. Y.: We do require that all oil burner installation mechanics be licensed.

Fitness for the license is determined by the Chief, Bureau of Fire Prevention and the Examiner of Stationary Engineers.

By having only licensed men do the work and obtaining permits, a check can be made to make sure all work is done according to established standards and practices. It also brings in revenue to the city to help defray the expenses of the enforcing agencies.

Walter J. Flores, Chief, Allentown, Pa.: We do not license oil burner installation mechanics, although I believe it should be done.

I believe the Building Inspector and an inspector for the Fire Department should determine the fitness of the mechanic, and that the Building Inspector should issue the license.

Upon request to install an oil burner, an inspection should be made of the premises to make sure that the chimney area is sufficient. The proposed location of the unit should also be checked. Upon finding that all conditions will warrant such installation, a permit should be granted and a fee charged. The fee would then be used to pay the salary of an inspector who would make periodic inspections. We, like any other community, respond to numerous calls for faulty oil burner installations and maintenance difficulties.

Richard Duck, Chief, South Bend, Ind.: A license is required to install any type of heating plant.

This license is passed on by an examining board consisting of the City Heating Inspector and three heating contractors appointed by the Mayor. The permit is then issued by the Building Department.

Such licensing prevents installation by unqualified men, fly-by-night operators, etc., and requires that men doing the work comply with the standards established by the ordinance.

Joseph Zale, Chief, Gary, Ind.: Oil burner installation mechanics are not licensed in Gary, although all electrical work must be done by a licensed contractor.

I feel that the Electrical Inspector and an examining board should do the examining and issuing of license.

Clarence E. Blanchard, Chief Fire Prevention Bureau, Toledo, Ohio: Oil burner installation mechanics are licensed by the Assessment Bureau under the Heating Inspection Department.

PROTECTION

for your men as well as your community, depends upon your equipment.

In breathing emergencies use a

STEPHENSON RESUSCITATOR

QUICK DEPENDABLE SAFE

In cases of smoke suffocation, gas poisoning, heart attack, electric shock.

Hundreds of departments know from experience that Stephenson Resuscitators are the most effective and do most for the victim.

Simple and easy to operate.

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Represented in Canada by WILSON & COUSINS, Toronto

A Warm Air Heating Board consisting of five leading contractors, the Commissioner of Inspection and the Chief of the Fire Prevention Bureau determines the fitness of the candidate by means of a written examination.

Such licensing offers a chance to check up on workmanship and assures fire-safe installations and also guarantees the comfort of the occupant.

Thomas Maloney, Chief, Jersey City, N. J.: Oil burner installation mechanics are not licensed in Jersey City, although I believe they should be. The examining should be done by the Chief of Fire Department through the Bureau of Combustibles.

In my opinion, the benefits accruing from licensing these mechanics would include:

1. Competent and responsible mechanics.
2. More frequent servicing due to availability and sales pressure.
3. Inefficient units would be retired from service when beyond repair.
4. Accurate placement for responsibility for fires.
5. Sharp decrease in fires from this cause.

J. H. Krusenklaus, Chief, Louisville, Ky.: We do not license oil burner installation mechanics, but believe it should be done.

We believe the Heating Engineers attached to the present Furnace Inspector's office should determine the fitness of applicants.

Such licensing would insure a closer control over the type persons making such installations, thereby insuring a reduction in the numbers of unnecessary fires, with the possible resultant loss of life and of property.

W. J. Lewis, Chief, Norfolk, Va.: We do not issue licenses for oil burner installation mechanics, although I have been informed that the Master Plumbers and Heating Association of Norfolk have been considering the matter.

I believe fitness of the applicant should be ascertained by a committee composed of representatives of the Plumbing Inspector, Bureau of Electrical Affairs, Master Plumbers and Heating Association and Bureau of Fire Prevention, the latter group merely to ascertain the applicant's knowledge of fire regulations, and at the same time render certain advice that will be of help to him and to the Bureau.

Such licensing would establish greater control and will tend to eliminate the jackleg and fly-by-night person, so to speak, whose installations without the required permit from the Public Safety Director and inspection by the Bureau of Fire Prevention could result in hazardous situations.

Coast Icehouse Burns

A fire which started in an icehouse compressor early on the morning of September 30 destroyed the icehouse and a furniture warehouse in Placentia, Calif.

Firemen from Anaheim, Fullerton, Orange, and Yorba Linda joined Placentia units in the three-hour battle to control the blaze.

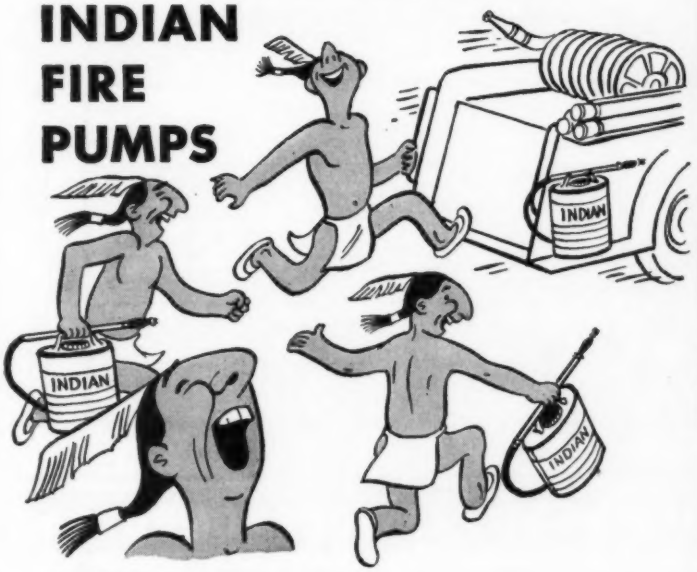
Destroyed was the Crystal Ice House and the D. B. Furniture Co. and a nearby washrack all located near Chapman Ave. and Bradford St. in Placentia, an Orange County community.

Loss was estimated at $100,000.

—CLIFF DEKTAR

Trucks without
INDIANS
are like ham without eggs!

COMPLETE YOUR EQUIPMENT WITH
INDIAN FIRE PUMPS



INDIAN FIRE PUMPS are approved by Underwriters' Laboratories. When you choose an INDIAN you select the BEST!

"Choice For Quality The World Over"

More and more new apparatus is coming through with INDIAN FIRE PUMPS mounted as standard equipment. There are good reasons why so many fire protection agencies insist upon having these *"one man fire depts."* on their trucks.

Enjoy the time and effort saving advantages which come from having INDIAN FIRE PUMPS available for all class "A" and many class "B" fires and small oil fires.

Fire Chiefs tell us that "INDIAN FIRE PUMPS *alone* will handle 40% of their calls and are worth their weight in gold."

Put INDIANS on your present trucks — specify them to be installed on new trucks.

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CANADIAN AGENTS
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C. E. Hickey & Sons, Ltd. Hamilton, Canada

Driver Training

(*Continued from page* 1087)

tice sessions, performing these skills in an approved manner until they become part of a "natural" pattern.

While it is true that the groundwork can best be laid in a driving school, techniques best explained and approved skills demonstrated firstly on a safe driving range and later in traffic, these skills must constantly be practiced over and over again until they become habit-forming. During this formative period there must be expert supervision by a trained supervisor, as bad habits, once learned are very difficult to "unlearn." This supervisory ability must be acquired by Company Officers through the medium of the Officers School and developed by the representatives of the Training Division or Board of Instructors when the visit quarters. In addition, such Board of Training Division should be available for information and guidance whenever a Company Officer feels there is something further he would like to know about the subject.

Inasmuch as the commercial fleet owners and supervisors have had decisive benefits from such training, there is no valid reason why the Fire Service should not similarly benefit. As one authority states, "A broad and long range educational and driver training program represents the most potentially fruitful course towards accident reduction in fire departments." And further on, "If only a single accident is avoided as a result of such training, then without a semblance of a doubt the entire program was well worth while."

As previously noted, there are two general programs into which the information presented in this article may fit, i.e., a Driving School for new candidates and a check-up or refresher course for those already assigned to drive. In most instances the topics have been covered in a common fashion, since in many respects both types of programs will overlap. A complete course in a Driving School would include:

1. Physical examination by a physician.
2. Traffic and Driving Knowledge Test.
3. Examination of past driving records.
4. Attitude Test.
5. Psychophysical Tests.
6. Road-e-o, including demonstration of Detonator.
7. Driving skill test in traffic.
8. Classroom instruction.

These topics need not be covered in this order nor even on an individual basis. For example, in some instances it has been found both interesting and advantageous to set up for a day a "Driver Training and Safety Education Institute"—an all day program which covers the use and explanation of psychophysical tests, detonator use and interpretation of results, showing a film on the development of proper attitudes, and lectures by outside representatives of agencies specializing in this field.

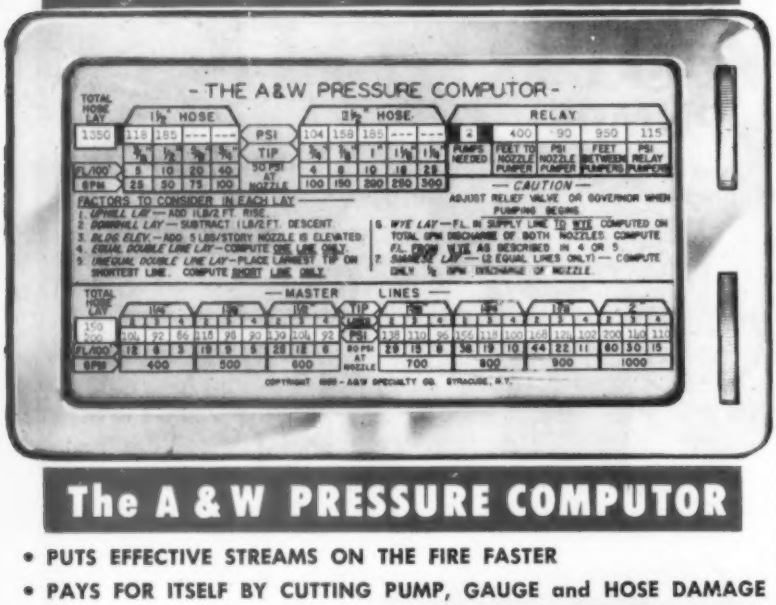
Refresher Program

Under the refresher program, it may not be practical to incorporate all phases of the previous type program, since the group handled in the fire station and on duty would range from one to five individuals. In this set-up it would probably prove more advantageous to employ one of the compact psychophysical units. The instruction program should encompass one or more complete drill periods, depending on the needs of the group. Besides the use aand meaning of psychophysical machines, the "inside" or theoretical part of the program should include driving knowledge and attitude information. Furthermore, consideration should be given to related material on reaction and braking distances, speed, traffic regulations, skids and other factors ,which may apply in particular to the individual company or group of men.

Previous to, or during the driving skill test in the company's fire district, the topographical features of the neighborhood should be noted, such as hills, bad intersections, railroad or other crossings, etc., and given attention during the lecture part of the drill. Unless the training field for the Road-e-o is nearby, it may not prove practical to include such under a refresher course. Some departments, however, use it to stimulate interest among its regular drivers and, through its competition, determine the department "champion."

Probably the most beneficial part of this type of course is the driving skill test and habit analysis over a predetermined route in traffic. A check list, similar to that previously explained, should be marked by the examiner while each driver wheels the apparatus over the course. The examiner should start his analysis of the driver's habits from the moment a simulated alarm hits and continue until the apparatus is safely backed into quarters. Such a check-up

A turn of the dial solves any pump pressure problem in a few seconds



The A & W PRESSURE COMPUTOR

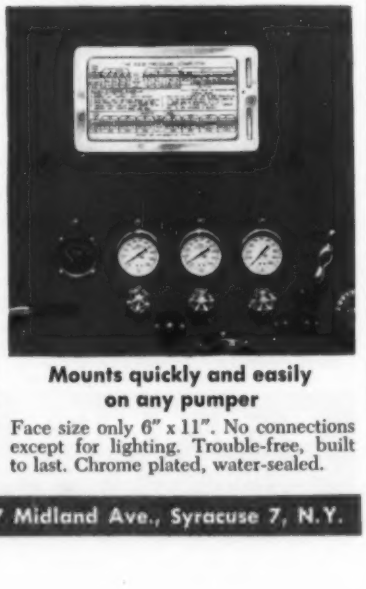
- **PUTS EFFECTIVE STREAMS ON THE FIRE FASTER**
- **PAYS FOR ITSELF BY CUTTING PUMP, GAUGE and HOSE DAMAGE**

If you know your hose lay and tip size, the A & W Computor gives you exact pumper pressures in seconds . . . just by turning the dials. No more guess work, no mental computations, no time or water lost while experimenting with different pressures. You get the answer immediately . . . and you know it's accurate.

- Gives exact pressure settings to produce 50 PSI nozzle pressure on all 1½" or 2½" hand lines from 50' through 1500' for tip sizes from ⅜" through 1¼".
- Gives exact pressure settings for 80 PSI nozzle pressure on master stream appliances using nozzles from 1¼" through 2" supplied by 2, 3 or 4 lines up to 1000'.
- For relays, calculates simultaneously the number of pumpers required, spacing of pumpers and exact pressure for each pumper to obtain 200 GPM discharge at 50 PSI nozzle pressure.

Distributor inquiries invited

FOR FULL INFORMATION, WRITE



Mounts quickly and easily on any pumper

Face size only 6" x 11". No connections except for lighting. Trouble-free, built to last. Chrome plated, water-sealed.

A & W SPECIALTY CO., Dept. F, 3717 Midland Ave., Syracuse 7, N.Y.

may bring to light poor habits which may have been followed for years and which one day may be the basic cause of a serious accident. Such visits and analyses have in the past revealed drivers with the following defects:

"A". Starts pumper and immediately roars out of quarters without checking to see that rest of company is on apparatus.

"B". Crosses sidewalk in front of quarters at a speed that vehicle could not be stopped if a child or adult darted across the opening of doorway.

"C". Driver of aerial truck started vehicle without checking to see if tillerman was mounted or ready, or without giving any signal as to which way he was going to turn outside quarters.

"D". Driver of aerial truck slowed apparatus while making turn in front of quarters but speeded up too soon, before members of company, who were stopping traffic, had a chance to mount.

"E". Had the habit of taking eyes off road momentarily to look at transmission lever when shifting gears.

"F". Kept foot down on gas pedal when approaching and crossing "blind" intersections.

Besides adding interest and serving as a valuable teaching aid on the topic of braking distances, the detonator serves as an excellent check on the efficiency of the brakes on the apparatus of each company visited during the program. It must be pointed out, however, that these tests should be conducted in a blocked off street or other safe area, least any untoward event mar the program.

Program Should Be a Continuing One

Such a skill test and driver checking program under a trained group of supervisors should be a continuing one. In the same fashion that companies are periodically required to demonstrate techniques and meet certain standards in the Company School, drivers should be regularly tested to make sure that their driving techniques are approved and the results of their psychophysical tests up to approved standards.

Many universities have entire departments devoted to this field of traffic safety and volumes have been written on each individual aspect of it. It is, therefore, physically and manifestly an impossibility in this treatise to adequately cover all phases of it in such detail as to provide complete guidance for all departments in establishing their training programs. Rather, it is the purpose of this study to present a picture of the needs for, but lack of, such training with what is hoped is adequate coverage of the general steps to be taken in setting up programs and providing pertinent information on the various areas to be explored. Beyond this, the job rests with the individual department or group of departments operating on a mutual basis in investigating their own requirements, having their instructors properly trained and otherwise setting up a planned and adequate training program to suit their own particular needs. Because even in the colleges and universities Driver Education and Safety is relatively new, it is a definite recommendation that leaders in the Fire

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SUPER FYR-FLEX 600 & 400

it's made with DACRON! The new, stronger, synthetic fibre load-carrying "filling" cord.

it's 25% LIGHTER! Easier to carry . . . easier to handle. Gets into action faster!

it's more FLEXIBLE! Easier to coil and uncoil . . . cuts loading time. Permits storing more hose in truck bed.

it's 50% STRONGER! 600 & 400 lb. test . . . withstands 50% more pressure than any hose of the same diameter.

For *faster* fire fighting action, get Fyr-Fyter's new Super Fyr-Flex . . . the fire hose that now outmodes conventional hose! Its exceptional strength without bulk, made possible with Dacron reinforcing "filling" cord, plus its lightness and flexibility, gives you top performance efficiency. And for longer life and economy, Super Fyr-Flex provides a new high in resistance to heat, chemicals, water absorption, mildew, abrasion, and wear. Plan now to take advantage of the performance extras you get in Super Fyr-Flex fire hose . . . write for complete information today!

TEAR OUT THIS COUPON AND MAIL WITH YOUR LETTERHEAD TODAY!

☐ Send full details on Fyr-Fyter Super Fyr-Flex Hose.

☐ Send your 60-page Fyr-Fyter Accessory Products Catalog.

☐ Send a Fyr-Fyter Representative. Let's talk it over. No obligation.

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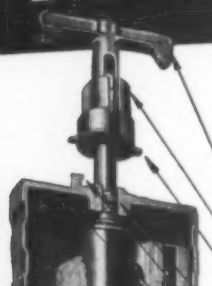

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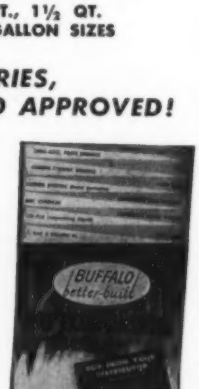

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SINCE 1895 . . .
BUFFALO FIRE APPLIANCE
CORPORATION
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Service pool their knowledge and experiences in this field in order to secure a good cross section of recommended practices and procedures.

A limited list of specialized agencies has been suggested, any one of which, it is felt, will cooperate in the training and developing of fire department instructors as well as supervising and guiding their programs; since theirs is a common and kindred goal—the reduction of accidents and the increase of safety on the highways.

Acknowledgment

The author is indebted to the following who contributed material or provided guidance for research in the preparation of this treatise:

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Dr. Herbert Stack of the Center for Safety, New York University.

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T. A. Seals, Association of Casualty and Surety Companies.

For placing the equipment and resources of the F.D.N.Y. at the disposal of the writer for research and experiment, gratitude is expressed to: Edward F. Cavanagh, Jr., Fire Commissioner; Peter Loftus, former Chief of Department; Edward Connors, Chief of Department and Thomas P. O'Brien, Deputy Chief in Charge, Accident Control Program.

It is not the intention of the author or the editors to endorse any of the devices or other products mentioned in the text to the detriment or exclusion of others. Those which fell within the scope of this study are not discussed in any critical manner, but merely mentioned in an exploratory fashion for possible usage and guidance of the readers of this article.

Fire Chaplain Goes Hollywood

Norris T. Morton, Chaplain (Major) USAF, Hamilton Air Force Base, Calif., known to many readers of FIRE ENGINEERING, has passed his screen test for a new movie to be called "Airman Smith."

The dominie was asked to play the part of Airman Smith's father; the "mother" will be the mother of an Air Force Major. The film shooting is in San Rafael. The pix will be a 40-minute production and shown in theatres throughout the world, and over TV.

Services Consolidated at Henderson, Nev.

Fire, police, and emergency ambulance services in Henderson, Nev., have been consolidated in a new Department of Public Safety.

Wallace E. Newcomb, retired Los Angeles Fire Department Battalion Chief and former head of that department's famed Mountain Patrol, is the Director of Public Safety.

Henderson is Nevada's third largest city with a population of approximately 14,000 persons.

The Henderson Department of Public Safety is made up of 23 members. Under the Director of Public Safety there are two chiefs, one for fire and one for police. Only other ranking officers are the assistant to each chief and the engineer in the fire department.

Personnel work 40 hours a week on a three platoon basis. Each shift has at least one supervisor on duty and he has full charge.

The Health Department is also under the Director of Public Safety and members of that department may also be assigned to fire or police duties.

According to Director Newcomb, 25 citizens have been formed into an auxiliary. They have regular tours of duty and bring the total number of men beyond requirements of the Underwriters for each shift.

An extensive training program of four two-hour classes per week is used. All D.P.S. members plus all auxiliaries are required to attend the training classes. All are trained in all three phases of fire fighting, police, and rescue work.

Most of the material used in training is from the L.A. Police and Fire Departments. Red Cross first aid instruction is also given.

The D.P.S. operates one emergency ambulance.

Henderson now has one fire station and voters have just approved issuance of $1,500,000 in bond to build another station and improve to water system. A 1000 gpm triple is on order.

Director Newcomb points out the fire record in Henderson is very low. As of October 1 there were only 61 fires, only one where loss exceeded $10,000. Fire prevention activities are also carried out by D.P.S. personnel.

Auxiliaries serve for 25 cents an hour and Director Newcomb says they do their job very well.

CLIFF DEKTAR

Brush Fire

(*Continued from page* 1093)

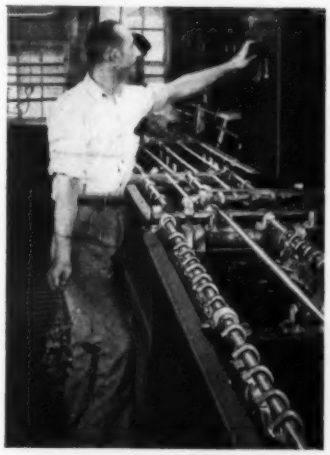
patched nine engine companies, four patrols, two tractors, six forestry camp crews, all under command of Battalion Chief Paul Clark, Asst. Chief Harvey Anderson, and Deputy Chief John Duncan.

The Los Angeles Fire Department had 11 engines, 7 tank wagons, two all-wheel drive 1,000-gallon mountain patrol tanker-pumpers, a 2,500-gallon "mother tanker," and a tractor on the lines.

At the fire were Deputy Chief Frank Rothermel, Asst. Chief Leonard Eggleston, Division 4, and Acting Asst. Chief Don Hibbard, Division 2. Some 36 move-ups were necessary, six of which moved on to the fire.

CLIFF DEKTAR.

.....PLAYS A VERY IMPORTANT PART IN MAKING **BLACKINTON BADGES..**



Plating worker adjusting electrically controlled master panel before putting badges into plating tank.

After careful cleaning and polishing your badge is ready for the first of *three* very important plating operations. *First* your badge is immersed in a scientifically controlled copper solution. *Second,* a heavy coating of Hot Nickel is applied for brightness and wear resistance. *Third,* if your badge is to be Gold Plated or Rhodium Plated these finishes are applied over Copper and Hot Nickel.

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Among the Buffs

By Paul C. Ditzel

IT won't be long before the city of San Francisco celebrates the golden anniversary of the worst fire disaster ever to hit a modern American city. When I was in San Francisco recently there was talk of some special commemorative exercises, perhaps led by the active Phoenix Society.

One of the club's most avid members is Doc Levin, who not only publishes the organization's rather sizable monthly magazine, but also keeps close tabs on the comings and goings of the members.

Doc reports that on a recent night a second alarm was pulled for a worker at 930 Post Street. Among the members present was Clayton Sherman who that night was celebrating his 25th wedding anniversary. Brer Sherman excused himself from the festivities and was off in a swirl of dust down Nob Hill or wherever he happened to be when the alarm tapped in. "A good Phoenician never misses a fire," Doc comments. We wonder how Mrs. Sherman feels about same.

The Phoenix Society always takes great pleasure in showing visiting buffs the town. While others might find greater fascination in San Francisco's Golden Gate sights such as Fisherman's Wharf, the Top O' The Mark, and other tourist attractions, the visitors nearly always get the $5 tour.

Los Angeles' Box 15 Club Members George "Smoky" Bass, Dick Lindberg, together with New York Bell Clubber Les Fisher were visiting recently and made a pushoff for a five-alarm fire that still amazes the Phoenix Society members. Doc is positive that whenever Dick and Smoky hit town things begin to pop. The week the two of them spent in the Bay City saw the fifth alarm, plus one third and two deuces.

Doc, who recently celebrated his 16th wedding anniversary, certainly is well on his way to becoming the Phoenix Society's own Hedda Hopper. Witness this prose pirated from his latest magazine:

"At the fifth alarm fire of the General Alarm Paint Company on Army Street, the following members attended: John Livington, unshaven and in his old clothes; Sam Clark and his note book; Joe Connell and his grey turn-out suit; Doc Levin and his turn-out blues; Van Farnham and his army coat; Clayton Sherman and his little flash light; Tom Larke and his grey coat; Jerry Snow and his lumber jacket; George Youngling and his boots; Hank Spaeth and his new suit; Bob Goldstein and his brown outfit; Dave Smith and his new glasses and Clyde Fredricks and his turn-out hat."

I wonder what else is new in San Francisco.

Without doubt the most intriguing part of Doc's magazine is his monthly report on all multiple alarms. I am interested in his report of August 28, 1955, when Box 4132 was pulled at Scott & O'Farrell Streets at 9:53 A.M. The box was followed immediately by a second alarm and one minute later by a "3/2" signal. The way I count, and I'm not good at arithmetic, some 7 engines, 3 trucks, a tank wagon, 2 salvage corps, plus an assortment of chiefs and other equipment responded.

No Phoenix Society members attended this greater alarm and Doc's notation says simply, "This greater alarm was transmitted due to an error in a transmission of alarms drill."

The things you read these days.

Somehow this recalls an incident that happened in Chicago when I was a reporter. A 3-11 alarm had been pulled for a mercantile building blaze along Belmont Avenue. The boys appeared to be holding the fire when the chief in command heard more sirens approaching. In a minute or so the officers of companies responding on the 4-11 alarm were reporting for orders and a couple of minutes after that the 5-11 alarm companies came piling in.

When the extremely baffled chief made inquiries he learned that the simultaneous fourth and fifth alarms were pulled via police radio. It so happened than an unknown prankster stole into an empty squad car while its occupants directed traffic. The prankster then turned in a false fourth and fifth alarm which was honored both by the police dispatchers as well as the fire alarm office when the radio room relayed the request to them.

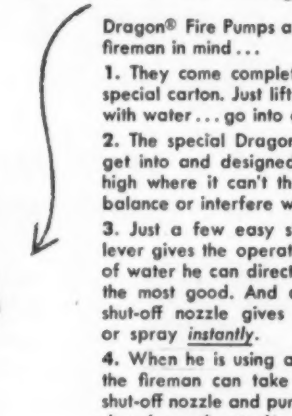
Just goes to show you that you can't hardly believe what you hear over your short wave radios these days.

Sitting on the shelf over my desk is one of Philadelphia's Al Redles' palm-sized plastic fire helmets with a built-in pencil sharpener. Works good on copy pencils: they're the hardest to sharpen, too. The helmet comes in brilliant red

Here's a break for hard-working firemen!

Dragon® Fire Pumps are designed with the fireman in mind...

1. They come completely assembled in a special carton. Just lift out the pump... fill with water... go into action!
2. The special Dragon harness is easy to get into and designed so the pump rides high where it can't throw the fireman off balance or interfere with walking.
3. Just a few easy strokes of the pump lever gives the operator a *continuous* flow of water he can direct right where it does the most good. And a mere twist of the shut-off nozzle gives either solid stream or spray *instantly*.
4. When he is using a Dragon Fire Pump, the fireman can take his hands off both shut-off nozzle and pump lever to use rake, shovel, or other tool.
5. There's no pump packing to dry out: even after standing idle for long periods, a Dragon Fire Pump is ready for instant use.



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All units equipped with brass pumps; all tanks seam welded. Capacity 5 gallons

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and white, together with shields—which my little girl promptly ate. A worthy addition to any fire buff's collection of what-have-you. And useful, too. Al's firm manufactures those plastic model railroad scale buildings you see in all variety stores and you can probably pick up one of the pencil sharpener helmets there, too, for 29 cents, that is.

That's it for this month. Hoping to be back again next month with turtle neck sweater, color blue and scuffed shoes, I remain at 419 Napoleon Street, Playa del Rey, Calif. Wonder what Doc does in his spare time, besides burn himself on his spanking new toaster that his five children gave him and Mrs. Levin.

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of Ocober, 1955.

Month Ending October 31, 1955

Birmingham, Ala.—Donovan Coffee Co. building in downtown district, damaged.
Demopolis, Ala.—Allen W. Rogers Industries building damaged.
Sheffield, Ala.—Elementary school destroyed.
Flagstaff, Ariz.—Southwest Lumbermills, Inc., planing mill and storage warehouse, a mile east, destroyed.
Blytheville, Ark.—Wright Supply Co. building materials firm damaged.
Booneville, Ark.—Palace Cafe and Junior Market destroyed.
Bowman, Ark.—Delta Farms Cotton Gin near here destroyed.
Caraway, Ark.—Grain elevator destroyed. Spark from a corn husk burner.
Russellville, Ark.—Main building of Dover High School, 12 miles north, destroyed. Lightning.
Corcoran, Cal.—Warehouse of Cutter Grain & Milling Co. destroyed. Electric motor.
Eagle Rock, Cal.—Dale Theatre destroyed.
Long Beach, Cal.—Girrillo's Cafe damaged.
Los Angeles, Cal.—Building housing Sanford Aircraft, Inc., Walmore Equipment Corp., Jet Fitting & Supply Co., Associated Machines Sales and Precision Machine Rebuilders, all manufacturers of aircraft parts, destroyed.
Los Angeles, Cal.—Dwelling of Louis Gerst destroyed. Cigarette.
Los Angeles, Cal.—Messiah Baptist Church damaged.
Nevada City, Cal.—Sawmill of Rock Creek Lumber Co., six miles north, damaged.
North Napa, Cal.—Busby's Furniture Co. store destroyed.
Sacramento, Cal.—Meredith Fish Co. distribution plant damaged.
Sacramento, Cal.—State-owned warehouse at 12th & R Streets, destroyed.
San Dimas, Cal.—First Christian Church damaged.
San Francisco, Cal.—Polk Hotel destroyed. Arson.
Bristol, Col.—Major portion of National Alfalfa Dehydrating & Milling Co. destroyed. Electrical short.
Danbury, Conn.—Lakeview Restaurant, a popular dining and bowling establishment, destroyed. Short circuit.
Simsbury, Conn.—Two sheds full of tobacco at American Sumatra Tobacco Plantation in Westogue section, destroyed. Careless smoking.
Torrington, Conn.—Building housing Allied Grocers Co-operative and a bowling alley, damaged.
Waterbury, Conn.—Sacred Heart School damaged.
Delaware City, Dela.—Construction office of C. F. Braun Co. at site of new Tide Water Associated Oil Co. refinery damaged. Exploding gas furnace.
Miami, Fla.—Briar Bowl tobacco shop in Seybold Arcade damaged.
Brunswick, Ga.—Kut-Kwick Corp. plant, manufacturers of power mowers and pulpwood saws, damaged.
Chicago, Ill.—Accurate Sign Co. damaged.
Chicago, Ill.—Business building owned by Midwest Engineering Co., communicated to 609-13 West Fulton, owned by M. Laser & Co., furniture manufacturers, then to 217-23 N.

1943 . . . A midwestern industrial landmark, which at the turn of the century was the nation's largest tanning center was destroyed by fire with a $300,000 loss. Huge stocks of lumber, paints, oils and furniture were stored in the building. (Int. News Photo)

TODAY...
FIRES ARE FOUGHT BY ATTACK...NOT DEFENSE!

The Man with the Scott AIR-PAK
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YOURS IS A **FIRE ATTACK** DEPARTMENT IF YOU HAVE SCOTT AIR-PAKS ON EVERY FIRE TRUCK

A major requirement for *FIRE ATTACK* is complete breathing protection. That's why Scott Air-Paks are *FIRE ATTACK* equipment. To get in fast, through thick smoke or hazardous fumes calls for experienced firefighters and Scott Air-Paks.

Your men breathing cool, fresh air will save more lives and reduce fire losses to a minimum. Take steps now to make yours a *FIRE ATTACK* Department. Write us for complete information.

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215 ERIE STREET LANCASTER, N. Y.

Canada: Safety Supply Co., Toronto — Branches in principal cities
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Desplaines street, owned by W. Rubenstein, damaged.

Peoria, Ill.—Interior of Wertz & Flynn Distributing Co., Inc., wholesale beer and liquor firm, destroyed.

Spring Valley, Ill.—Department store destroyed.

Elkhart, Ind.—Elkhart Paint & Body Shop damaged. Leaking propane gas ignited by truck flare.

Indianapolis, Ind.—Interior of a warehouse at 427-33 Madison avenue destroyed.

Warsaw, Ind.—Lake Theatre damaged. Oil furnace and hot water boiler exploded.

Girard, Kans.—Markham & Sowers Supply Co. building destroyed.

Napoleonville, La.—Glenwood House, one of Louisiana's better known old plantation homes, 45 miles west of New Orleans, destroyed.

Bangor, Me.—Building occupied by Bangor News Agency and Ideal Dye House damaged.

South Warren, Me.—Piggery at Maine State Prison farm destroyed.

Unity, Me.—Four buildings on farm of Blake Good destroyed.

Van Buren, Me.—Storehouse and potato house containing 18,000 barrels of potatoes belonging to the Aroostook Potato Growers, destroyed.

Whitman, Mass.—Blacksmith Shop Restaurant damaged.

Alpena, Mich.—Mountain Inn Tavern and adjacent garage destroyed. Defective wiring.

Eau Claire, Mich.—Fruit packing house on Joseph Pratt farm, one-half mile west, destroyed. Incendiary.

Flint, Mich.—Three high octane gasoline storage tanks, warehouse and four trucks at Blue Oil Co., destroyed.

Grand Haven, Mich.—Kiel building occupied by Floto's Gift Shop, destroyed.

Kalamazoo, Mich.—Grand Rapids Sash & Door Co. lumber yard destroyed; nearby Union Trim Lumber Co. damaged. Short circuit.

Minneapolis, Minn.—Offices and warehouse of Holmes-Hemphill Co., damaged.

St. Paul, Minn.—William Naiditch Co. plumbing supply building destroyed.

Laurel, Miss.—Laurel Oil & Fertilizer Co. plant damaged.

Rolling Fork, Miss.—Grocery store, cafe and two dry goods stores destroyed.

Parkville, Mo.—Men's dormitory at Park College destroyed.

Pine Lawn, Mo.—A & P Food Stores supermarket destroyed.

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MODEL 30

OVER 2000 GPM

FOR
FIRE BOATS
LUMBER YARDS
OIL TANK FARMS
REFINERIES AND
MANY OTHER SPOTS
WHERE PLENTY OF
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Where protection calls for

BIG GUNS

Permanent mounted pedestal Deluge Gun — for fire boats, Navy and industrial use. A really big gun — 2000 GPM. Furnished with 1½- 1¾- and 2-inch tips (2½ inch stream without using tips). Comes with 4 inch divided T Wye and 2 two-way automatic valve Siamese units. Full rotary action, including extremely low position. Stream can be set in any position and left alone. It's the biggest gun in fire service — but a gentle touch operates it.

Send for detailed information

SAMUEL EASTMAN CO., INC.
CONCORD, NEW HAMPSHIRE

Lakewood, N. J.—Hotel Grossman destroyed.

Newark, N. J.—Main building of Monoplast Chemical Corp., plastic manufacturers, destroyed.

Springville, N. Y.—Jewelry store, women's clothing shop, drug store and liquor store in heart of business district destroyed.

Woodaville, N. J.—Brookside Inn destroyed.

Albuquerque, N. M.—American Furniture Co.'s warehouse destroyed.

Farmington, N. M.—Commercial Motors Co. destroyed. Spark from an electric wrench ignited gasoline.

Buffalo, N. Y.—Zion Evangelical & Reformed Church damaged. Defective wiring.

Kingston, N. Y.—Oil storage plant on the outskirts of this Hudson Valley community destroyed.

Locke, N. Y.—Grain elevator, fertilizer mill and feed mixing machinery in Atwater Co. building in this southern Cayuga County village, destroyed.

Port Ewen, N. Y.—Building housing offices of three oil supply firms in this Ulster County town, destroyed. Spontaneous ignition.

Seneca Falls, N. Y.—Gibbs Building housing East Motors and Seneca Falls Bowling Alleys, destroyed.

Tonawanda, N. Y.—Lincoln Park Supermarket destroyed. Possibility of arson.

Atlantic Beach, N. C.—Pavilion owned by Bill and Ward Ballou, three concessions owned by John Keith, destroyed.

Charlotte, N. C.—Boar's Head Restaurant destroyed.

Fayetteville, N. C.—Planters Tobacco Warehouse, three miles out, destroyed.

Forest City, N. C.—Westbrook's cotton gin in nearby Shiloh community, destroyed.

New Bern, N. C.—Freight warehouse owned by Atlantic & North Carolina Railroad, including stock of King Whole Co. and Alphin Bros., destroyed.

Ashtabula, Ohio.—Goodyear Tire & Rubber Co. store destroyed.

East Canton, Ohio—NATOC Corp. tile plant damaged.

Findlay, Ohio—Building occupied by Turner-Fernstermaker Shoe Store; Fry Block occupied by Gordon Dress Shop, seven apartments and Eighth Congressional District offices of Representative Jackson E. Betts and Odd Fellows Building, occupied by Alice Dress Shop and club rooms, destroyed.

Maximo, Ohio—Yoder's General Store and filling station destroyed.

Mt. Gilead, Ohio—Building occupied by Union Department Store, offices and grocery, damaged.

Orient, Ohio—Barn at Orient State Hospital destroyed.

Clatskanie, Ore.—Kent Magruder Feed and Seed Co. destroyed. Fuse box explosion.

Oakridge, Ore.—Ray Jamieson cafe, television store and dwelling destroyed.

Portland, Ore.—Heat treating specialties plant and trucks of Ray Ogg, destroyed. Explosion.

Portland, Ore.—Web Supply Co. feed-car ship, destroyed.

Prineville, Ore.—Mid-State Lumber Co. destroyed. Burner sparks.

St. Helen's, Ore.—St. Helens creosoting plant and electrical machinery, damaged.

Sutherlin, Ore.—Robinson Building Supply Co. destroyed.

Allentown, Pa.—Bohner Building occupied by Thorner Jewelry Co., Restum Record Shop, Hamilton Billiard Academy and Quality Sportswear Co. destroyed.

Bristol, Pa.—Evans & Fisher Automobile Repair Garage destroyed. Sparks from welder's torch.

Harrisburg, Pa.—Warehouse of Allis-Chalmers Manufacturing Co. damaged.

Lancaster, Pa.—Buildings on Samuel H. Groff dairy farm, Route 72, 18 miles south, destroyed.

Philadelphia, Pa. — Warehouse operated by Reveille Furniture Manufacturing Co. destroyed. Five other adjoining buildings damaged.

Sharon, Pa.—J. M. Wilson & Sons Furniture Store damaged.

Swarthmore, Pa.—Hall of Chemistry of Swarthmore College heavily damaged.

Trainer, Pa.—Building of Sinclair Refining Co. destroyed. Explosion.

Warren, Pa.—Oil tanks and chemical buildings in the Seneca division of United Refining Co., destroyed. Explosion.

Williamsport, Pa. — Building housing Robert Raemore Sporting Goods Store, Capital Grill and CIO-Lycoming County Industrial Union, damaged.

Greenville, S. C.—Wing of Colonial Court Hotel on Highway 29, destroyed. Neon sign.

Sumter, S. C.—Barn and warehouse at Culcou plantation of E. T. Gulledge, destroyed. Careless smoker.

Chattanooga, Tenn.—Belt's Garage, adjoining Hatfield & Keef Furniture Co., H. W. Stuchberry Co., Buster's Place and Friendly Tavern, damaged.

Nashville, Tenn.—Ridgetop Inn, 20 miles out, destroyed.

Corsicana, Tex.—Buildings at Corsicana Municipal Airport destroyed. Grass fire.

Houston, Tex.—Houston Radiator and Fender Co. and McKee Cafe destroyed.
Pharr, Tex.—Hidalgo County road equipment in a warehouse on U. S. Highway 83, destroyed. Explosion of an asphalt treatment heater.
Sharyland, Tex.—Sharyland packing plant of Texas Citrus Growers Exchange, in lower Rio Grande Valley, destroyed. Short circuit.
Ogden, Utah—Sprawling mills and towering elevators of R. J. Wight, Inc., feed and grain plant, destroyed.
Salt Lake City, Utah—Large section of Quality Linen & Towel Supply Co. destroyed.
Virginia Beach, Va.—Main section of Seaside Amusement Park, destroyed.
Warsaw, Va.—Garage operated by W. I. Beauchamp destroyed.
Spokane, Wash.—East Farms warehouse and apple crop of H. N. Segerstrom, destroyed.
Vancouver, Wash.—Monterey Hotel damaged. Faulty wiring.
Hubball, W. Va.—United Fuel Gas Co., gasoline extraction unit, damaged. Butane gas fumes from a ruptured valve exploded.
North Vancouver, B. C.—Parkside Lumber Co. Ltd sawmill on the waterfront, destroyed.
Vancouver, B. C.—Vancouver rooming house, old people's home, destroyed.
Halifax, N. S.—Partly completed two-service defense training school destroyed. Building was to have housed Royal Canadian Air Force and Canadian Navy personnel.
Truro, N. S.—Service station operated by Goodspeed & Davidson, Ltd., and apartment building owned by George MacCharles, destroyed.
Kirkland Lake, Ont.—Queen Elizabeth School, damaged.
Richmond, Que.—Building known as Marcotte Block occupied by Richmond Printing Co., Maison Bernard clothing store and apartments, destroyed.

World Wide Fire News

By Roi B. Woolley

From the World News Ticker

At least nine persons were killed and about 30 injured in a gunpowder explosion at an Aleppo store near Damascus, Syria, on September 20. It was feared the death toll would rise. The blast demolished the store and damaged five houses. Reports say the explosives were used in quarrying. . . . The Atomic Energy Commission reported Sept. 24, that the Russians had set off another nuclear explosion "indicating a continuation of their tests of nuclear weapons." . . . The Atomic Energy Commission will conduct a series of tests in November to see if stored explosives can be touched off accidentally by fires or other mishaps. Tests will be held at the Nevada Proving Grounds starting Nov. 1. . . . Officials of Hilo, Hawaii, recently reversed themselves on announcement of a volcanic eruption on the Island of Hawaii. The "eruption" they said, "apparently" turned out to be a forest fire on the slopes of Mount Kilauea. Police and Civil Defense authorities explained that their earlier announcement was based on reports of airline pilots who claimed they had seen "lava fountains" rising 600 feet into the air from the Heiheiahulu Crater. . . . Fire in the central business district of Caracas, Venezuela, caused damage estimated at more than $1 million. . . . . Three men were killed and four injured Oct. 7, last, when an explosion splintered a 500-pound door at an electronic parts plant in New Bedford, Mass. The blast occurred during a test run in a vacuum oven on the second floor of the plant and scattered shrapnel-like pieces of steel. . . . An engine-room explosion and fire killed at least one person aboard a ferry crossing Guanabara Bay, Rio De Janiero, in September. Five of estimated 40 passengers were missing and ten hospitalized with burns and injuries.

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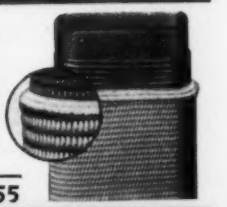

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Questions and Answers

Finding Flow from Friction Loss

To the Editor:

I would appreciate your help in answering the following fill-in questions:

1. The friction loss in 300 feet of 2½-inch rubber hose is 33 pounds. The flow through the hose is most nearly——?

2. If the friction loss in 475 feet of 2½-inch rubber lined hose is 57 pounds, the flow in gallons per minute is most nearly——?

J. F. K.

Answer: The formula for finding the flow in a line of hose when the friction loss is given is as follows:

$$Q = \tfrac{1}{2} \times \sqrt{2\,FL} - 0.25$$

Q is the flow measured in *hundreds* of gallons per minute, and FL is the friction loss per 100 feet of hose.

In your first problem, the friction loss in 300 feet of 2½-inch hose is 33 pounds, or 11 pounds per hundred feet.

Then $Q = \tfrac{1}{2} \times \sqrt{2 \times 11} - 0.25$
$= \tfrac{1}{2} \times \sqrt{22} - 0.25$
$= \tfrac{1}{2} \times 4.69 - 0.25$
$= 2.09$, or 209 gallons per minute

Thus for a friction loss of 33 pounds in 300 feet of 2½-inch hose, the flow would be in the neighborhood of 209 gallons per minute.

In the second problem you give, the friction loss in 475 feet of 2½-inch hose is 57 pounds. The friction loss in 100 feet is equal to 57 divided by 4.75, or 12 pounds.

Then $Q = \tfrac{1}{2} \times \sqrt{2 \times 12} - 0.25$
$= \tfrac{1}{2} \times 4.9 - 0.25$
$= 2.45 - 0.25$
$= 2.2$

Then the flow is 220 gallons per minute, as Q is the flow in *hundreds* of gallons per minute.

Ignition of Cotton Bales

To the Editor:

We are endeavoring to secure technical data such as would relate to and bear upon the cause and incidence of fire in baled cotton.

Basically we are concerned with a shipment of over a hundred bales of machine-compressed cotton. These bales were burlap wrapped and metal banded. After being so prepared, they were loaded to an all-steel box car, stowed across the width of car from end to end.

After being in transit eight days, the car was discovered with smoke coming from ends and under floor. A check of car side bore evidence of the fact that same was not intense. Metal sheathing was cool, as well as the journal boxes, indicating that the journal waste had not been overheated so that any fire might have been transmitted thereby.

Car doors were opened and several smoking bales were noted to be in the extreme south end of the freight car. Bales in front were unloaded and the smoking bales removed. It was observed that these were almost entirely burned and, when removed, the flames shot up from the center of those bales, completely destroying them. At no time, however, were these bales on fire on the outside up to the time of being set out. In addition, when they were removing the bales from the car, our forces observed that several of these loaded in front of the smoking bales felt hot. Eventually fire was discovered in those bales, being extinguished with the aid of considerable water. Fire broke out in some bales after we had them stored on the ground ten days, notwithstanding that such bales appeared to be perfectly free of any fire.

We would like whatever information it may be possible for you to furnish specifically relating to:

1. How long after baling, conditions such as we have enumerated might have an influence on the commodity causing fire?

2. What cause would you assign

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• HOSE IS SELF-PROPELLED—As it passes through wringer rolls a slight pressure with the lever handle pulls hose through under its own power.

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• DRAINS HOSE LININGS—"Squeegee" action of neoprene wringer rolls eliminate necessity of hanging hose in towers or "walking" it before drying.

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• CLEANS WITH OR WITHOUT DETERGENTS—Hose is soaked in immersion tank filled with lukewarm or cold water, as preferred. Soaps or detergents may be added if needed.

FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life. No other drying method is so fast — so economical — so easy to use. Circul-Air is the preferred drying method in over 3,000 leading Fire Departments.

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under the enumerated conditions as being the factor?

3. How long may cotton be confined in an all steel car without untoward event? Would confinement to such a car for a period of eight days be detrimental?

4. What inherent condition or hidden vice of the product would be a factor or would have a tendency to cause a fire?

A. F. C.

Answer: First, before we answer your questions, we will present some information on causes of fires in cotton.

Fire Insurance Inspection & Underwriting, by Charles C. Dominge and Walter O. Lincoln, has the following to say:

"The majority of fires have been traced to static electricity, smoking and sparks from machinery. In ginning damp cotton there is much friction and a spark is created. That spark is hidden in the interior of the cotton as it is baled and smoulders for hours before it burns to the surface and exposes the fire. When that event occurs at night it starts a fire. To prevent this occurrence, the damp cotton is first fed into a hot-air dryer where moisture is removed. The temperature of the drier seldom exceeds 160-200 deg. F. All machinery should be grounded. Underwriters write this class warily, confining themselves largely to the more modernized plants."

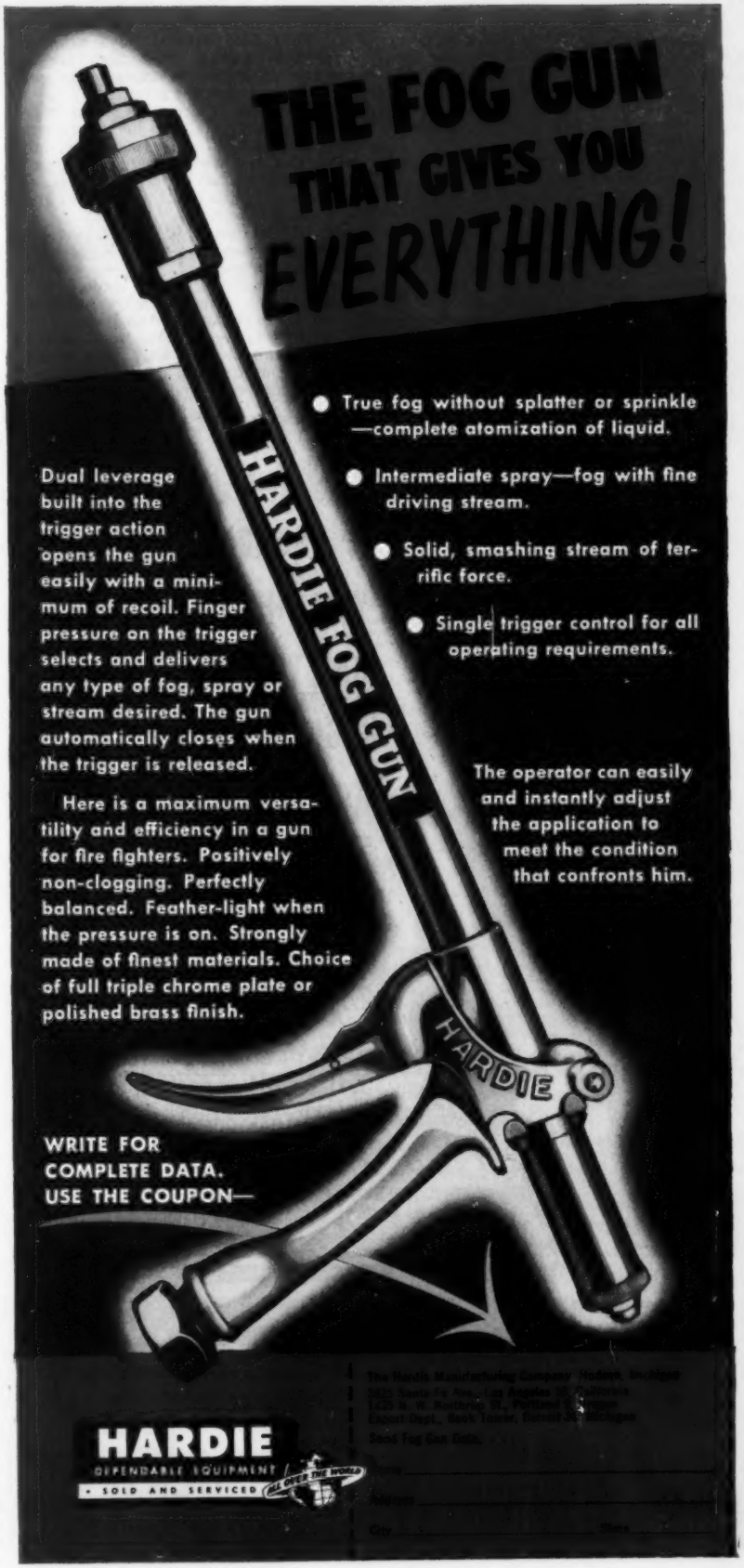
On the same subject, the National Board of Fire Underwriters have the following comments:

"Foreign material in cotton is a common cause of fire. In Mississippi it is reported to be the principal cause of fires in separators and gin stands. Metal or stones may cause sparks when passing through the separators or gin saws. If the cotton is damp or green it may cause clogging between the ribs of the gin, resulting in fires from friction. Fires are also caused by gin saws that are out of line striking the ribs.

"Static Electricity. An investigation of the causes of cotton gin fires in Texas and Oklahoma, by the U.S. Department of Agriculture led to the conclusion that the principal cause was static electricity, which accumulates on the ginning machinery. Local authorities in Mississippi believe that static is seldom an important cause there because of the high average humidity. The hazard from static is greatest when the humidity is low and the cotton is dry. Static may cause fires directly from spark discharges or indirectly by causing cotton to cling to parts of the machinery with the result that fire is produced by friction.

"Fire-Packed Bales. Frequently as a result of small fires at the gin, burning cotton reaches the bale press without being discovered, resulting in what are called fire-packed bales. At some later time the spark or smoldering fire in the bale eats its way to the surface, starting a blaze which readily spreads to other bales and to adjacent combustible material. Fire-packed bales are considered responsible for more destructive gin fires than any other cause, since they often break out at night when no one is around.

"Other causes in the order of their importance are: Buildings left open during idle season and used by loiterers.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Sparks from engine exhaust, boiler stack or railroad locomotives. Motive power hazards, such as boilers, internal combustion engines and electric motors. Hot bearings, friction of distributor belt, and other machinery failures. Defective electric wiring. Dry grass and weeds on premises."

And now with reference to the questions you ask:

1. Dana and Milne in their handbook on *Industrial Fire Hazards*, give the following information which may answer this question: "After a bale leaves the press, it slowly expands, tending to assume a shape approaching that of a cylinder. If a spark alights upon it, the sucking action caused by expansion of the cotton carries fire into the interior of the bale along the air passages. It is not uncommon to find evidences of burrowing fire in bales and frequently fire will break out in cotton in a warehouse, car, or ship's hold several days after exposure to sparks. Such fires are frequently attributed to spontaneous combustion or to unknown cause."

2. From the information given in preceding paragraphs, you may draw your own conclusions. It would seem, however, that the spark entered the bale at the cotton gin or cotton compress, and penetrated in the usual manner, to break out some time later.

3. If the cotton is fairly clean, and contains no agencies which would cause spontaneous heating, and no external source of ignition were applied to it, cotton bales should remain unaffected in an all-steel car indefinitely.

4. Only foreign matter, such as vegetable or mineral oils which might cause spontaneous heating, or the presence of caustic materials such as acids, would normally be expected to cause ignition of the bale after leaving the compress—assuming that no live spark remained in the bale at that point.

Pungent Fumes in Dress Shops

To the Editor:

In two of the dress shops in our city, the management is complaining of fumes that burn the eyes, throat and nose. These fumes seem to be worse in the summer when the air conditioning is on than in the cool weather. Both air conditioners are water cooled and one store replaced theirs with a new one, and the fumes aren't quite as bad as they were, except when the weather is humid. The managers of these two stores think these fumes come from the new materials and dyes that are being used in ladies' apparel, but it seems that if this were true, more dress shops would have this problem.

These stores are losing customers and naturally want to correct this condition if possible. The air conditioners and fluorescent lights have both been checked by experts and they can find nothing wrong.

Have you heard of any similar situations?

F. K.

Answer: The situation you describe is quite puzzling, for so far as we know there are no chemicals used in the dyeing of garments which throw off pungent gases.

A situation occurred a few years back up in Schenectady, New York, where a couple of shops located close together were troubled by strong chemical fumes.

A complete survey of the situation disclosed that the fumes arose from a sanitary sewer, carrying industrial wastes which passed beneath the buildings. Apparently the sewer joints were improperly made, and a crack in the floor of the building permitted the gases to rise from the sewer into the basement of the stores and then through the upper floors.

After locating the trouble, it was a simple matter to correct it.

Possibly the same situation is duplicated in the instance you cite.

Theater Roof Collapse Gives L. A. Firemen Close Call

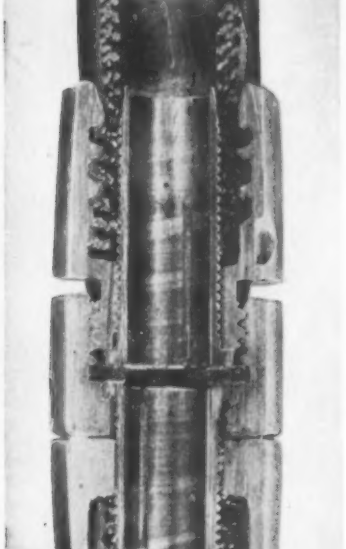
Ten Los Angeles City firemen escaped unharmed and one fireman was injured on Oct. 4 when the blazing roof of a theater in the Eagle Rock District collapsed while they were inside the building.

Fireman Stanley Purcell, 30, was the only casualty, suffering a cut hand when he dug his way out of the debris after the roof crashed.

Asst. Chief Earl H. Richardson, Division III, directed eight companies in controlling the $200,000 fire which also damaged two adjacent store buildings.

A short circuit in an electric motor was believed to have caused the fire.

CLIFF DEKTAR



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Obituaries

Chief Wood Collapses, Dies, From Fire Activity

Battalion Chief Frank Wood of the Long Beach, Calif., Fire Department, who collapsed August 31 while directing operations at an oil fire on Reservoir Hill, died the following day in Community Hospital. Death was attributed to heat exhaustion.

Chief Wood joined the Long Beach department in 1936 and rose through the ranks to become a battalion chief in 1951.

During his funeral procession, several engine companies were stationed at intersections along the route and as the cortege passed, firemen snapped to attention. Chief Wood is survived by his widow, Govanta, and two sons, Gerald and Richard. PAUL DITZEL

General Fleming Dead

Maj. Gen. Philip B. Fleming, 68, died Oct. 6 in Washington, D. C. following an operation. He was perhaps best known to the fire service as general chairman of former President Truman's Conference on Fire Prevention held in Washington in May, 1947.

He served also as Federal Works Administrator, Chairman of the Maritime Commission and in numerous other government posts. He retired with the ad vent of the Eisenhower Administration and became chairman of the Armed Services Hospitality Committee, which position he held at the time of his death.

Fog Tests

(*Continued from page* 1098)

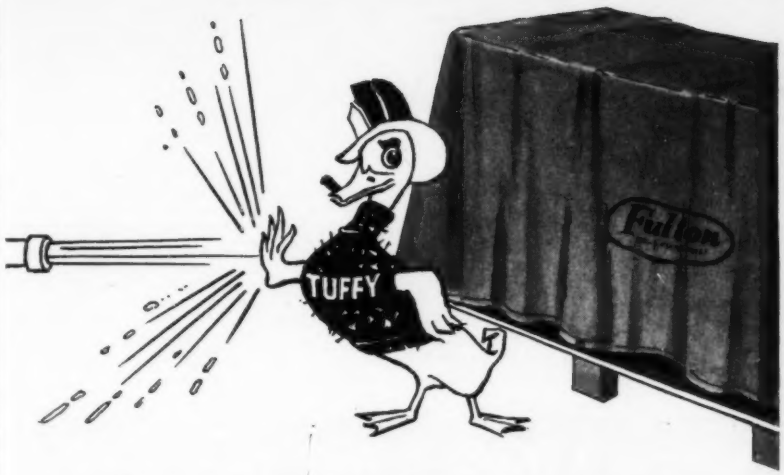
a variety of fires during the investigation. Fuels used included wood, gasoline, kerosene, and ethyl alcohol.

According to the NBFU report, the extinguishing action of sprays of finely divided water applied to commonly encountered fires appears to be due predominantly to dilution of the air supply in the zone of burning with vapor resulting from evaporation of water droplets in the heated area surrounding the fire. The cooling effects of the water may also be important factors in extinguishment in many cases. In order to obtain extinguishment, the water droplets comprising the spray must be relatively small, and the amount of water applied must be adequate in relation to the specific fire.

The marked increase in water surface per gallon where water is dispersed as droplets in a spray is an advantage since the rate of evaporation of the water and the cooling effects are directly proportional to the surface area, other factors being constant.

There is a lower limit to the size of the droplets which are of practical use in fighting fire, however, since the droplets must be large enough to travel from the source of the spray to the heated area surrounding the fire, and to arrive there with sufficient energy to overcome the currents of hot and turbulent gases moving upwards and away from the fire.

Droplets too large to evaporate completely on passing through the zone of



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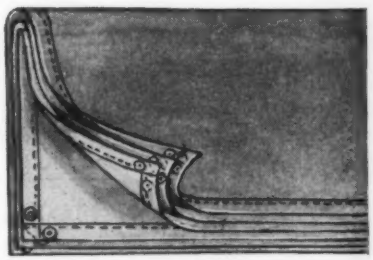
Shuredry Green-Bak Covers will pass the tests specified by the National Board of Fire Underwriters. They also carry the approved symbol of the Associated Factory Mutual Fire Insurance Companies.



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combustion and its immediate surroundings may contribute to extinguishment in some cases by cooling the unburned fuel. Even though no extinguishment occurs, the application of water spray may control the rate of burning to some extent.

In tests where experimental water sprays having known droplet size distribution were applied to fires, extinguishment occurred if the droplet size was within certain limits and the total water reaching the test fire exceeded a minimum volume in relation to the drop size. The results of these tests suggest that the optimum average volume diameter of the water droplets for extinguishment is of the order of 300 microns (0.012 inch).

The tests also showed that kerosene and ethyl alcohol fires appear to be more readily extinguished by water spray than are gasoline fires.

In tests with water sprays applied to gasoline fires, it appeared that extinguishment was due primarily to dilution of the oxygen supply with water vapor, The absorption of heat during evaporation of the droplets may also contribute to extinguishment, particularly when it occurs in or near the zone of burning.

Extinguishment by cooling the fuel with water spray is not possible in the case of gasoline fires since the fire point and flash point of gasoline are well below the freezing point of water.

Copies of this report, "The Mechanism of Extinguishment of Fire by Finely Divided Water," may be obtained from the Research Division of the National Board of Fire Underwriters, 85 John Street, New York 38, N. Y.

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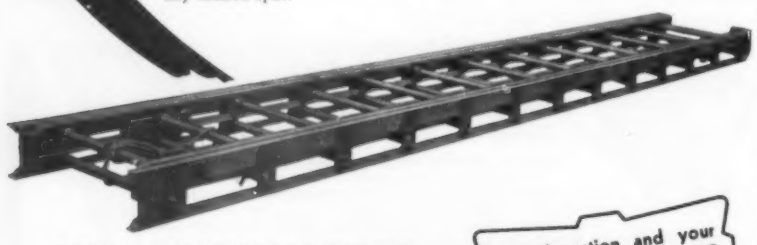
Because of the special construction shown above, your ALCO-LITE 2 EL Ladder will serve as safely and faithfully years from now as it does today. You have 1¼", heavy, corrugated aluminum rungs to assure solid, safe footing. The rungs can't twist, turn or break off because they are permanently locked to the side stringers with exclusive double gusset plate and expansion bushing construction. Channel slides the entire length of the ladder make it easier to operate and prevent the sections from disengaging under severe use. Spring loaded locks also make for easy and positive operation. Multiple section ladders are designed so that all sections extend simultaneously and lock and unlock automatically at any desired spot.



Available are single, double, triple and four section ALCO-LITE Ladders. Also, aluminum Pike Poles, Folding Ladders, Roof Ladders and the NEW Pumper Extension and Pumper Roof Ladders designed for short wheelbase pumper trucks.

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Fire Chief Injured at Supermarket Blaze

Wally Newcomb, fire chief and director of public safety in Henderson, Nev., near Hoover Dam, was treated for injury to his eyes received when he entered a burning supermarket building in Pittman in the early morning of August 15 to help lay hose lines.

Dick's supermarket was totally destroyed with damage estimated at $70,000.

Night watchman Jack Shannon, who lives in a trailer at the rear of the store, called the Henderson Fire Department about the same time a radio report of the blaze was made by Patrolman William Reason, who saw the flames while cruising the area.

The structure was completely involved when the Henderson F.D. arrived. Firemen were hampered by low water pressure in the area.

Though unable to save the market itself, fire fighters managed in preventing the flames from spreading to adjacent structures. CLIFF DEKTAR.

Heavy Loss at Wholesale Grocery

A seven-hour fire swept through a two-story brick building at Torrington, Conn., on Oct. 19, heavily damaging the Allied Grocers Cooperative, Inc., and a bowling alley. Fire Marshal Joseph A. McCarthy estimated the damage to be in the neighborhood of $350,000.

The 43,000 square-foot building, seven years old, was crammed with grocery supplies. The company houses one of the largest wholesale outlets in Western Connecticut, a supplier of about 100 retail stores.

Two members of the Torrington Fire Department, Lieut. Lester Downs, and Fireman John V. Smedick, were hospitalized following injuries. Lieut. Downs received a knee injury and Fireman Smedick suffered from smoke inhalation.

All companies of the Torrington Fire Department, aided by companies from nearby Burrville, Litchfield and East Litchfield, fought the blaze less than half a mile from the city Central Square, heavily damaged by the Aug. 19 flood in Connecticut.

Samuel Zachar, a squad car patrolman, discovered the blaze at 3:30 A.M., and immediately called the Fire Department. Recall was sounded at 10 A.M. TOM MAGNER

Blaze Damages Cabinet Shop

An early morning fire caused an estimated damage of $20,000 to the structure, tools, equipment and stock of the Alexander Cabinet Shop in the Lennox district of Los Angeles County, Calif.

Battalion Chief Parker Haraden commanded five Los Angeles fire companies which brought the blaze under control. The fire was discovered by a guard at the nearby Zenith Plastic Works. Flames spread to the roof of the plastics firm but firemen kept damage to a minimum at this occupancy.

The cabinet shop had been closed since 5:30 on the Friday before the early Sunday blaze, July 23, and arson investigators were seeking an explanation as to how the fire started.

PAUL DITZEL

Persons in the News

Chief Blamey Retires

Chief James T. Blamey, of Spokane, Wash., retired Sept. 1, 1955, after 45 years service, the last ten as Chief of the Department. Chief Blamey leaves a host of friends both on and off the department and will be long remembered for his work on the many committees

Chief James T. Blamey

of the department. He was a charter member of Local 29, I.A.F.F. and led many of the early day fights for better working conditions and wages.

Assistant Chief W. A. Dunham was appointed by Public Safety Commissioner, Carl Canwell to succeed retiring Chief Blamey.

Joining the department in 1927, Dunham was promoted to Lieutenant in 1938, Captain in 1941, then Assistant Chief, where he has served the past nine years.

Chief W. A. Dunham

In announcing the appointment Commissioner Canwell said, "It is my personal belief that I have chosen a man well qualified and deserving of this honor. The men with whom you work speak highly of your ability and character. A man who has enjoyed the respect and confidence of his fellow workers throughout the years should be well qualified for the position."

Chief Dunham has always been known as a worker for any improvement. He is past president of Local 29, I.A.F.F. and has served on every committee for wages, hours, conventions, welfare, etc.

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SAVE MONEY...
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Cheap hose is expensive in the long run—in lives as well as money! Bi-Lateral has been famous for quality since 1907—and we don't intend to endanger that reputation—or lives—by making "cheaper" hose to meet a cheaper price.
Cheap hose must be replaced in seven years—Bi-Lateral will give you twenty years of safe service.
We believe that safety and long run economy are more important than price alone in the purchase of fire hose. That's why we say, "when you buy with your conscience, you'll Bi-Lateral!"
FIRST AGAIN!
BI-LATERAL was first to construct hose with the bi-lateral non-creasing feature for longer life, lower cost in the long run and true safety. Folds flatter, handles more easily!
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AND BI-LATERAL was first to furnish free fire hose record cards to fire departments. They are still available—send for a supply!
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Chief Grenfell Honored

Fire Chief Edward Grenfell of Portland, Ore., was honored upon completion of his 50 years' service in the fire department at a banquet tendered him by over 300 friends and associates at Portland's Columbia Athletic Club, during Fire Prevention Week.

The occasion brought leaders of the Pacific Coast fire service, members of civic and other groups together to applaud the veteran on "Chief Edward Grenfell Day."

An old comrade of Chief Grenfell's rookie days, Jay W. Stevens, Executive Secretary of the International Association of Fire Chiefs, led those paying tribute to Grenfell's long, successful career as fire fighter and leader in fire prevention.

Joining in the tribute, was Chief William Fitzgerald, newly elected president of the International Association of Fire Chiefs.

Chief Grenfell was presented with a gold placque and other gifts honoring his long service. In his perpetual honor also will be an Edward Grenfell plaque to be presented each year to the Junior Chamber of Commerce member who does the most for fire prevention.

Greenfield Heads Jersey Chiefs for 36th Year

Not one, but a number of records, were broken Sept. 10th, last, when at the 50th annual meeting of the New Jersey State Fire Chiefs in Sussex, N. J., Charles W. Greenfield of Kearney, was elected to his 36th one-year term as president of the organization.

"Charley" as he is known to everybody, now 75, had been chief in Kearney for 17 years when he retired in 1922. He also was fire chief for many years of the E. I. du Pont de Nemours & Co. plant in Arlington, N. J.

An active member of many fire service organizations, Charlie Greenfield has been a member of the International Association of Fire Chiefs for 47 years; a member of the N. J. State Firemen's Association for 50 years and an honorary member of firemen's groups in some 15 other states.

Other officers named were: vice-president, Arthur Bilby, Chief of Montclair; secretary-treasurer, Clarence H. Dougal, former Livingston Chief; and Director, Russell Hunt, Chief of Haddonfield.

Another widely known and popular New Jersey veteran, George L. Mitchell, 85-year-old retired chief of East Orange, was elected a life member and treasurer emeritus. He ended a 34-year term as treasurer, at the meeting.

Chief Alderson May Retire in L. A. Racial Integration Fight

Chief Engineer John H. Alderson of the Los Angeles Fire Department, target of frequent attacks by political and race conscious elements, has announced his intention to retire by January 1, 1956, over an integration battle boiling for two years in Los Angeles.

Chief Alderson said he would remain only if certain conditions were met, or if politics entered into the choice of his successor.

One of the most honored fire chiefs in the history of this nation's fire service, Chief Alderson became the center of a racial integration controversy instigated by outside professional minority pressure groups abetted by a political administration with powerful backing that unseated Reform Mayor Fletcher Bowron in 1953.

The chief, who is 57, emphasized that his retirement plan has nothing to do with a recent illness which hospitalized him for several weeks.

Chief Alderson's dramatic announcement came amidst an investigation of charges made by three Negro firemen that they were hazed shortly after they were transferred from an all-colored station to a downtown company where Battalion Chief John A. Dick was quartered.

Three fire commissioners, all lay Los Angeles civic and business leaders, ordered Chief Alderson to discipline and transfer Chief Dick, who was to make a public apology to the three firemen. Moreover, Chief Alderson was to personally appear at the fire station and at a lineup of men himself apologize to the three Negroes. Furthermore, the chief was ordered to transfer four white firemen into the station.

"I just wouldn't do it, that's all," Chief Alderson said. "I refuse to discipline a man for charges that have not been proved against him and I don't believe Chief Dick was responsible for conduct that went on at Engine 10." The chief gave his unqualified reaffirmation of confidence in Chief Dick.

Three members of the commission who met with Chief Alderson for four hours before he called a press conference to announce his plan to retire, later

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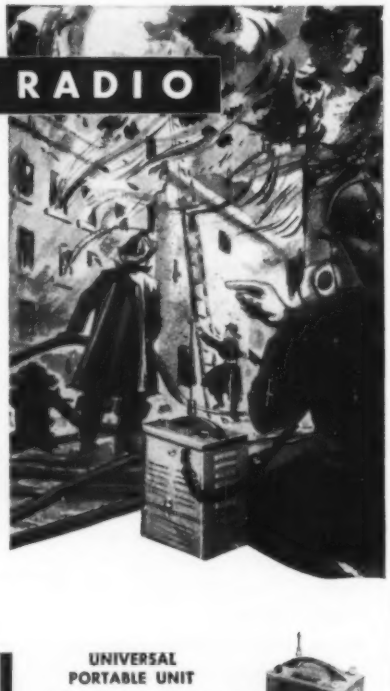
2-WAY RADIO



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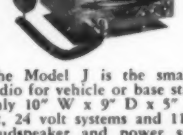
The Model A PAK-FONE has self-contained batteries, may be operated from a storage battery in a vehicle, or plugged into 117 VAC house circuit. Built-in power supply and loudspeaker.

FOR THE CHIEF

A personal 2-way radio, no larger than a camera. With it, the chief can direct operations from within a burning building. Unit is protected by a heavy leather case. Waterproof handset. FIELD-FONE Model FF.



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denied any such demands were made of the chief.

In an exclusive statement to FIRE ENGINEERING's Southern California correspondent, Chief Alderson had this to say:

"It is my present intention, not later than January 1, 1956, to apply for retirement to which I am entitled. I have done this in order that the Department of Civil Service and the City of Los Angeles may have an opportunity to conduct a proper promotional examination from which the Board of Fire Commissioners have the legal authority to choose my successor, such choice to be restricted to the first three names on the eligible list.

"One reason for this announcement is that no legal reason will occur for the choice of a successor even temporarily outside of the uniformed ranks of the department.

"There should be no question in the minds of observers who have followed the Fire Department that my retirement has been desired and sought by the present administration since July 1, 1953.

"Since that date I have had the opportunity to work with 14 different fire commissioners who have been removed or appointed by the incumbent Mayor. There certainly must have been some reason for the numerous changes in the membership of the Board of Fire Commissioners, and more and more it has become apparent to me that the reason for these numerous changes was the desire on the part of the incumbent Mayor for a change in the management of the Fire Department.

"I have stated repeatedly that I would not continue as General Manager of this department if the control of personnel was removed from me. I have been given definite notice that such control will be removed and I simply refuse to accept assignments which have been placed in my lap, which I believe to be detrimental to the efficiency of the department and which means that they would be detrimental to the lives of more than 2,000,000 people and the protection of more than $2,000,000,000 worth of property. Without the control of personnel and the assignment of personnel, no man can fairly accept the responsibility of this position."

FIRE ENGINEERING asked Chief Alderson if the wording "present intention" of his statement indicated there was any possibility he might change his mind. He replied:

"If, by an act of the City Council, the ruling of the City Attorney or an action formally by the Board of Fire Commissioners, the control of personnel was returned to me, that is the one condition under which I would remain after January 1."

Several days later, Chief Alderson said he would reconsider his decision: "If there is an injection of politics to prevent an honest, forthright and nonpolitical civil service examination to keep the right man from being chosen as my successor, then I will stay on the job."

When Commission President G. William Shea asked the chief if he would cooperate in the steps necessary to choose a successor, the Chief said: "I will, but I warn you that it has been my policy for many years to go one,

(*Continued on page* 1139)

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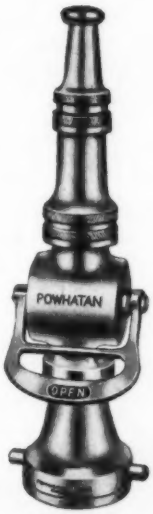

PLATE 101-A
SHUT-OFF

PLATE 104
CELLAR

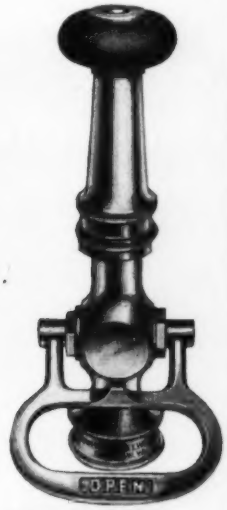

PLATE 112
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Connecticut Floods

(*Continued from page* 1081)

The main building of the Mill was of five stories, approximately 100 x 900 feet, divided into five sections. It ran parallel to the river, which during the flood had washed out most of the west wall of the main, or center, section, leaving the floors from basement to roof open to the wind and providing a perfect set-up for extension of the fire into adjoining sections.

Owens Corning occupied the "I" section of the main building for storage. Royal Electric occupied the "J" section for storing finished electrical goods, fuse storage and assembly and Christmas goods manufacture and assembly. The top floor also was given over to storage. The basement, or first floor, was flooded out and not being used at the time of the fire. The Crescent Co. used the one-story weave shed across the river on the Lincoln side for storage.

At the time of the fire, which started about 4:15 P.M., a party of carpenters and laborers was working on the fifth floor of the flood-damaged main building. The fire, when first noticed, was only a "small patch" in the rubble of the third floor. Its origin has not been definitely determined. It is variously blamed on sparks from a cutting torch; spontaneous ignition of combustibles resulting from flood action, and by ignition of chemicals by the flood waters.

The plant engineer who was supervising the workmen, ran to transmit an alarm to the Manville Fire Department, while carpenters played extinguishers on the blaze. The superintendent reported that by the time he had alerted the plant and reached the yard, the whole section of the structure was in flames. The workers went from the fifth floor staging to the fourth floor, where they entered an elevator. At the third floor, when they opened the elevator door, flames shot down the corridor and the men slammed the gate and descended to the ground floor. Within five minutes all the 550 or more workers were out of the buildings.

The sprinklers in the flood-damaged section of the plant were out of order due to the flood and the fire had uninterrupted control of that section, from which it traveled rapidly on the wind into adjoining sections. These, although sprinklered, were soon involved and within ten minutes, it is reported, the entire riverside part of the Mill was completely involved.

The sprinkler system's primary water supply was through 10 and 6-inch mains. A 10-inch public service main, which also supplies plant hydrants and the sprinkler system, was out of commission, due to flood breakage, and had been temporarily replaced by an 8-inch main. The plant also had two 1500 GPM fire pumps which also were inoperative due to the flood.

First arriving firemen of the Manville and Cumberland Fire Departments faced a hopeless task. Heat from the roaring blaze made it impossible to approach nearer than 100 feet on the land side of the burning structures.

Calls for aid were quickly sent to area fire forces and men and equipment from four cities and nearly two dozen surrounding communities responded. On the Cumberland side the following sent aid: Lime Rock, Lonsdale, Saylesville, Quinnville, Woonsocket, Central Falls, Valley Falls, Ashton, Berkeley, Pawtucket, Manville, Cumberland Hill. Also responding were the Cumberland Rescue rig (a Civil Defense unit); Ashton Rescue, and Cumberland and North Smithfield ambulances.

On the Lincoln side were: Georgiaville, Nasonville, Marieville, Greenville, Lymansville, Mapleville, Centredale, Gendale, Thornton, Chepachet, Harrisville, Pascoag and Providence.

The fire fighters from the Blackstone Valley and Northern Rhode Island areas, between 500 and 600 strong, utilized over 40 pieces of equipment, but were unable to prevent complete destruction of the mill and the sheds across the river. They did check the fire, however, from becoming a widespread conflagration.

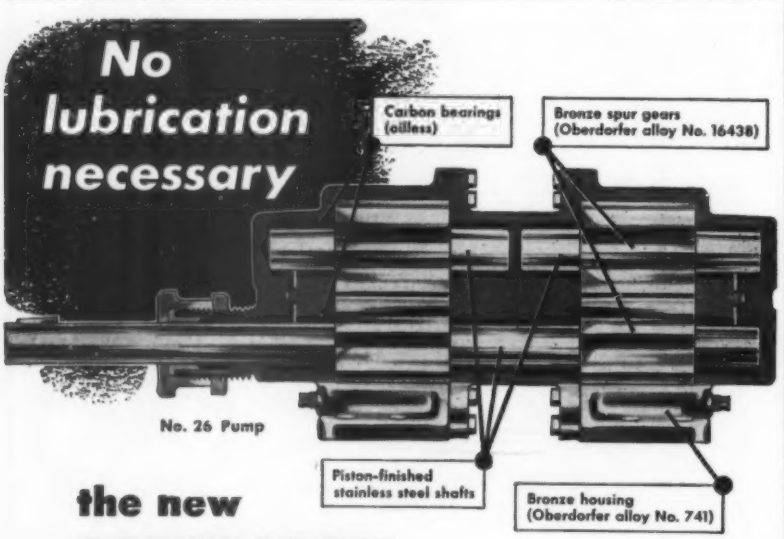
City of Hartford's Experience

Hartford, Conn., with a long history of floods, some of them of major proportions, withstood the August torrents better than most, because over the years the city had prepared.

The city, including the Fire Department, Chief Henry Thomas, was alerted at 3:00 A.M. by State Police, at which time Chief Thomas left his home for downtown. Many streets were already impassable due to flood waters from three streams in the western part of the city.

Local Civil Defense and Red Cross were alerted immediately. At 7:00 A.M. the Fire Department with all municipal departments was placed on standby alert. For the rest of that day the firemen were kept busy evacuating people from various flooded areas, including two large public housing developments.

Chief Thomas reports there was a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PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

great demand for boats, and small craft were grabbed up wherever they were located. Approximately 1,000 persons were evacuated by means of these small boats and taken to shelter areas.

Fire fighters pumped out basements of hospitals, industrial plants and many mercantiles. No first line apparatus was used in pumping flood water, Chief Thomas emphasizes, the work being done by means of portable pumps and spare pumpers.

Things went well during the day; Red Cross and Civil Defense went into action and the fire fighters felt pretty secure until about 3:00 P.M. on Friday, when it was evident a ladder crew and engine company working in the Woodbine St. area evacuating people were in trouble.

Chief Thomas responded and found approximately 75 people marooned in their homes on the opposite side of the street, which had become quite a large sized river, with fast flowing current. The crews had several good sized boats, some with 20 H.P. motors, but none could negotiate the currents.

A call was sent to the State for help and, within an hour, the Essex, Connecticut, Fire Department, Marine Division, which had been working in the town of Farmington, evacuating people, responded with their amphibious "duk." But the current proved too much for this unit, as it had for three large rowboats, which had capsized, one being completely demolished.

While awaiting the arrival of the "duk," a life gun was rigged and a line shot across the street. A 5/8-inch and a 3/4-inch rope were pulled over to the other side and firemen from one of the capsized boats, who had reached the other side, made these ropes fast.

The Naval Reserve also had been called and brought a bosun chair which, when it was found boats were of no use, was placed in service and efforts made to evacuate people by that means. About 20 persons had been pulled across when it was noticed the stream was receding rapidly. The "duk" was then tried again and ultimately all the marooned persons were removed safely.

For the next three days the department's operations were routine, organizing inspection teams of fire, police and others, to inspect buildings that had been flooded to detect structural hazards. All electric current had been cut off.

On Sunday the 21st, volunteer firemen from the Blue Hills Department and Wethersfield Department proceeded to New Hartford upon the State's request for aid. As elsewhere, responding forces had to travel many detours because of destroyed bridges and impassible roads.

The Blue Hills Department, using Hartford County radio frequency, set up a radio base in the Town of New Hartford, which became the only means of communication from this area to the outside world for nearly one week. Men from these two departments worked relay shifts through August 25.

The City of Hartford sent two pumpers, fully manned with 25 off-duty men to the New Hartford district to furnish fire protection. All of their own apparatus had broken down or otherwise become inoperable because of flood emergency.

This outside aid was released the evening of the 25th, when adjacent towns took over protection of New

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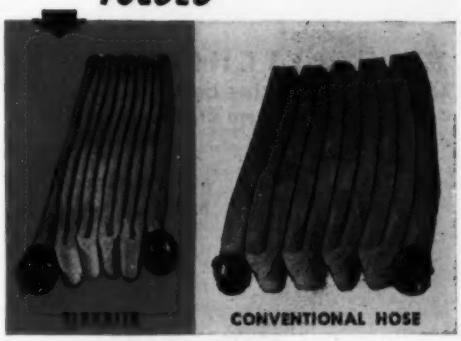

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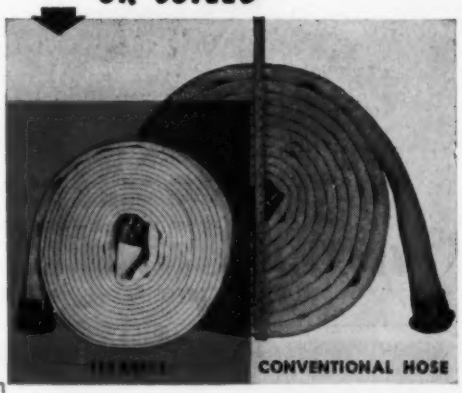

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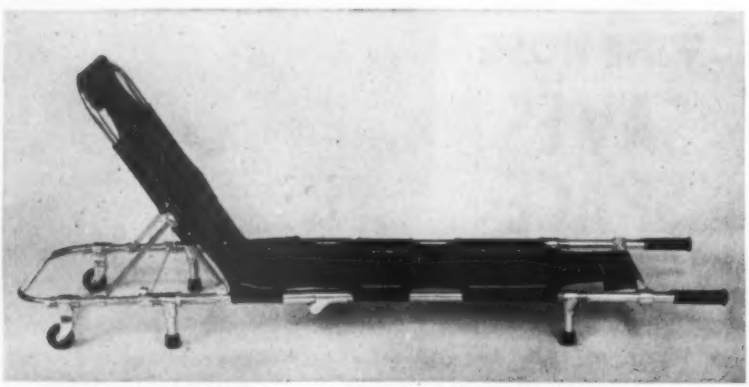

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GLOBE MANUFACTURING CO. PITTSFIELD, N.H.

Hartford area. Previously this aid could not reach the community because of the condition of highways.

"These volunteer firemen rendered valiant service," writes Chief Henry Thomas. "Many of them taking time from their regular employment, thus not only devoting their time and effort to helping people but they did this at great expense to themselves through loss of their regular employment wages."

Chief Henry Thomas Sums Up

After paying well deserved compliments to the volunteers of the Connecticut areas, Chief Thomas offered these conclusions:

1. Foremost, I might say, was the radio equipment, a major portion of the fire departments of the State being so equipped. In many instances, fire department radio was the only means of communication, and in all cases it enabled departments responding to know where others were, and to learn conditions of the area, including access roads and bridges.

2. Next, in order of importance, I would say portable pumps served well, but there was a definite lack of heavy boats to negotiate the terrifically fast current, which raged throughout the communities.

3. As to details about fire alarm systems, I lack information concerning them. In Hartford we had six boxes completely submerged but at no time was our fire alarm system out.

September Fire Losses

Estimated fire losses in the United States during September amounted to $65,970,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manager, this $65,970,000 loss represents an increase of 2.9 per cent. over losses of $64,087,000 reported for September, 1954, and a decrease of 7.2 per cent from losses of $71,103,000 for last August (1955).

Losses for the first nine months of 1955 now total $668,444,000 an increase of 0.1 per cent over the first nine months of 1954, when they amounted to $667,772,000.

These estimated losses include an allowance for uninsured and unreported losses.

Santa Monica's Tallest Building Damaged By Fire

A severe blaze which took a firm hold before it was discovered early on the morning of Sept. 3 caused an estimated $75,000 damage to the 12-story Bay Cities Building, Santa Monica, California's tallest structure.

The fire is believed to have started in a dental laboratory on the third floor. Electric clocks which stopped at 4:50 a.m. indicated the fire burned for more than two hours before a wire glass window burst in the laboratory. The shattered glass fell in an alley beside the building and Custodian Earl Washington turned in the alarm.

Acting Chief A. A. Brumfield of the Santa Monica Fire Department made the damage estimate. Two firemen, Edwin Webb, 35 and Andrew Ponton, 27, collapsed and were treated for smoke poisoning and exhaustion at Santa Monica Hospital. PAUL DITZEL

Coast Chiefs Meet

(*Continued from page* 1091)

Los Angeles, spoke on "Diesel Engines for Fire Service." Ray Bond, Chief Engineer of the National Fire Protection Association, Boston, Mass., gave the final address on the morning program.

At the afternoon session, Chief Homer Harpole, of Clinton, Ky., started off the program with a talk entitled "Hell's a-Poppin." He was followed by Chief Steve Taylor, of Boise, Idaho, who reviewed his experiences as a fire line observer at the Nevada Proving Ground atomic bomb tests.

The final feature of the technical program was a panel discussion on "Fire Department Problems during the Evacuation of Cities." Captain James H. Priopelle, Portland, Ore., Fire Department (Colonel, Ret., U. S. A. R.), served as moderator.

Exhibits

A representative group of exhibitors had displays in the exhibit hall, which was the Sun Valley garage. An entire floor, well lighted, was available for showing fire apparatus and equipment.

Those concerns participating in the exhibit feature included:

Crown Body & Coach Corporation
Mine Safety Appliances Company
Waterous Company
American Rubber Manufacturing Company
Muscular Dystropy Assn. of America, Inc.
Food Machinery & Chemical Corporation
Latin American Studio
The Seagrave Corporation
Western Fire Equipment Company
Notifier Manufacturing Company
Gamewell Company
L. N. Curtis & Sons
M. Greenberg's Sons
Halprin Supply Company
Superior Ambulance Sales Company
E L. Purdy & Sons
Coast Fire Apparatus Company
American LaFrance Corporation

Officers Elected

Officers elected for the ensuing year were: Chief S. H. Edmondson, Pasadena, Cal., president; Chief J. T. Caldwell, Ellensburg, first vice president; Chief K. E. Klinger, Los Angeles County, second vice president; Jay W. Stevens, San Francisco, Cal., secretary-treasurer. The new directors, in addition to retiring President J. K. Piercey, are: Chief Paul Jarrett, Parkrose, Oregon, and Chief J. H. LeStrange, Berkeley, Cal. Chief E. H. Aiman of Glendale, Cal., is sergeant-at-arms.

Warehouse Destroyed in Santa Paula, Calif.

A roaring blaze preceded by an immense back draft explosion destroyed the Balkwell Van and Storage warehouse at Ojai and Main Streets in Santa Paula, Calif., on Sept. 3.

Warehouse Owner Eric Balkwell estimated damage at more than $100,000 to the building and stored furniture.

Balkwell said he was in his office in the front section of the concrete block building when the door to the warehouse suddenly blew off its hinges and the entire rear of the structure was ablaze.

Furniture piled almost to the ceiling fed the flames as firemen raced to the scene from a station only a block away.

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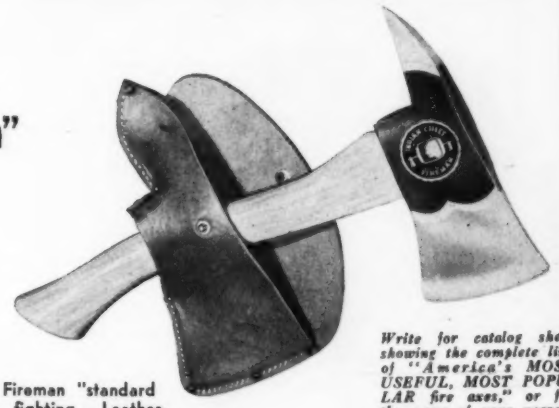

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●The Super Vacuum Smoke ejector is a powerful portable fan unit designed especially for fire departments. This design is a new and revolutionary principle in moving air. Several thousand Super Vacuum Smoke ejectors are in use throughout the United States and Canada. Controlled ventilation is new and very necessary in fire fighting. Years of service and satisfied users are your best guarantee for any merchandise.

THE HEART OF THE SUPER VACUUM

●The secret of Super Vacuum is the patented fan blade. Conventional fans chop the air and push it back. Whereas the Super Vacuum fan blade is a perfect spiral air screw which creates a partial vacuum, suction is created over the entire face of the blade and the air or smoke is discharged in a high velocity spiral. There are no dead spots—that is why Super Vacuum outperforms other fans twice its size.

Write for Additional Information or Contact Your Local Fire Equipment Dealer

MANUFACTURED EXCLUSIVELY BY
Super Vacuum MANUFACTURING CO., Inc.
319½ East 17th Avenue • Denver 3, Colorado

IN YOUR HANDS...

A FIREFIGHTER'S LIFE

If you hold in your hands the responsibility of selecting firefighter's equipment, you'll want the extra margin of protection in Bullard fiber glass fire helmets. Compare other helmets for strength and resiliency . . . you'll prove to yourself that fiber glass helmets are safer, more durable—choice of molded-in colors.

SINCE 1898

E. D. BULLARD COMPANY

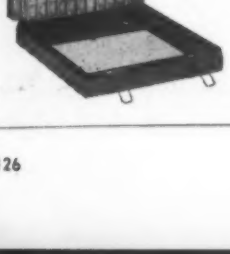
DISTRIBUTORS THE WORLD OVER

275 Eighth Street
San Francisco
California

EVERYTHING BULLARD IN SAFETY

T. M. REG. U. S. PAT. OFF.

FIRST AID KITS Packed in heavy duty case with an air tight sealer that protects first aid supplies even if subjected to intensive exposure to water and dust. Contents each individually wrapped in sterile unit packs.

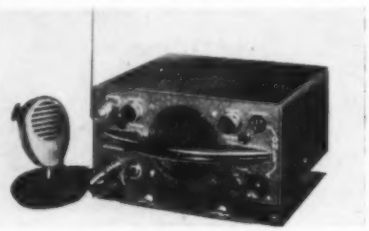


News of the Manufacturers

New Radio Announced

A compact 2-way radio which operates from 6, 12, 24 volt D.C. or 115 V. A.C. sources without a separate power supply has recently been announced by Industrial Radio Corp., 428 No. Parkside Ave., Chicago 44, Ill.

The Model J Pak-Fone may be used in vehicles, mobile industrial equipment, aircraft, as a base station, or when operated with a 12 volt aircraft-type storage battery, it becomes a portable unit.



Model J Pak-Fone

The unit measures 10" wide by 9" deep by 5" high, and can be quickly mounted in any position. Transfer from vehicle to vehicle can be accomplished in 2 minutes. The case is constructed of heavily reinforced steel which is weather-proofed for outdoor use.

The loudspeaker and power supply are built-in. Microphone, antenna and mounting frame are standard equipment. Accessories include roof-top, car window and ground plane antennas.

Frequency modulation and a relay type squelch circuit provide clear, noise-free telephone communications. A total of 25 tubes and crystal controlled stability contribute to the good performance of the equipment.

As current requirements are very small, approximately 1 ampere at 12 volts, no changes or additions to ordinary vehicle electrical systems are necessary.

Model J Pak-Fones carry FCC and Civil Defense designations. They operate in 25 to 50 MC and 145 to 174 MC bands.

FWD to Lease Apparatus

An exclusive arrangement whereby a fire department may lease any type of FWD fire fighting apparatus at a low monthly rate has been announced by Four Wheel Drive Auto Company of Clintonville, Wis.

Under the FWD plan, any type of pumper, aerial ladder truck, or tank truck may be leased for a five-year period. At the end of that time, the fire department may purchase the equipment outright by paying 5% of the original cost, may continue to lease the unit at 3% a year, or may trade the equipment on new firefighting apparatus with a new lease arrangement.

The FWD plan has been developed to accommodate the many fire districts which in recent months have turned to leasing their equipment to do away with the necessity of bond referendums or legal debt limit increases.

All sizes of FWD Special and De-Luxe pumper series, aerial ladder combinations, and tank units are available under the lease plan and any optional equipment desired may be included in the original lease price.

If this same unit were traded for similar new equipment at the end of five years, lower monthly rates would result.

Onan Introduces New Plant

Known as Model 105AK, a new lightweight, 1500 watt, 60-cycle A.C. electric plant is offered by D. W. Onan & Sons Inc., Minneapolis 14, Minn.

It is produced in two versions, Model 105AK-1P weighing 125 lbs., equipped with aluminum carrying frame as standard equipment, and Model 105AK-1M weighing 130 lbs., designed for stationary service but with carrying frame and 2-wheel dolly optional.

Both are completely Onan-built products with direct connected Onan all-climate generator; Onan 4-cycle heavy duty, air cooled gasoline engine and other features. The unit will run for about 3 hours on one gallon of gasoline at full rated load.

The new models are suitable for both mobile and portable electric plant applications.

For complete information, address the above.

Stephenson Resuscitators for Great Britain

It is reported that fire brigades in Great Britain and all Commonwealth Countries will have automatic resuscitators. A contract has just been completed between the Stephenson Corporation of Red Bank, N.J., and the British Oxygen Company of England under which the latter will build Stephenson "Minuteman" and professional model resuscitators and sell them under license to over 60 Commonwealth Countries, Islands, Protectorates and Dependencies.

Official approval has been granted by the Board of Trade and the Bank of England permitting royalties to be paid free of British tax. Thus, the "Tight Little Isle" and possessions will have available modern automatic breathing

W. H. Stephenson arriving at Idlewild Airport, New York, after successfully negotiating a contract with the British Oxygen Company of England.

machines having the latest features, including controllable pressures and oxygen-air concentrations. This climaxes a situation in which sterling areas have long wanted, but been unable to secure this type of protection equipment because they could not get dollars for pounds.

Ansul Announces Expansion Program

An expansion program has been announced by Ansul Chemical Company, Marinette, Wis. It consists of an addition to the company's mechanical manufacturing facilities in the fire equipment division, and new chemical plant buildings for the manufacture of sodium bisulfate and niacin.

Ansul expects to begin producing sodium bisulfate for sale next year. The manufacturing plant is 90 per cent complete and test runs have already been made. Sodium bisulfate, or nitre cake, is used in preparing bowl cleaner compounds. Raw materials for the manufacturing process will be supplied by residual products from another manufacturing operation.

A & W Pressure Computer

Given the hose lay and tip size, the A & W Pressure Computer gives the exact pressures in seconds. This means greater efficiency in fire fighting by reducing guesswork and uncertainty.

The handy device is easily installed on pump panel. It is a particular boon in relay operations: according to the manufacturer, it saves time, water, ruptured hose, damaged pumps and gauges and money, as well as reducing guesswork.

The complete story is contained in a new circular available for the asking. Address A & W Specialty Company, 3717 Midland Ave., Syracuse 7, N. Y.

I.D.E.A. Acquires Radio Apparatus Corporation

Edward C. Tudor, president of I.D.E.A., Inc., makers of Regency all-transistor pocket radio, announced the acquisition of Radio Apparatus Corporation, Indianapolis, Ind., effective Aug. 31, 1955.

Radio Apparatus will continue to operate under the name Monitoradio Division of I.D.E.A., Inc. Monitoradio produces VHF receivers for monitoring emergency communication broadcasts. "No change in personnel or policy is anticipated as a result of the merger," according to Mr. Tudor.

Rockwood's Clayton Kendall Retires

The retirement of H. Clayton Kendall, vice-president and works manager of Rockwood Sprinkler Company, Worcester, Mass., has been announced.

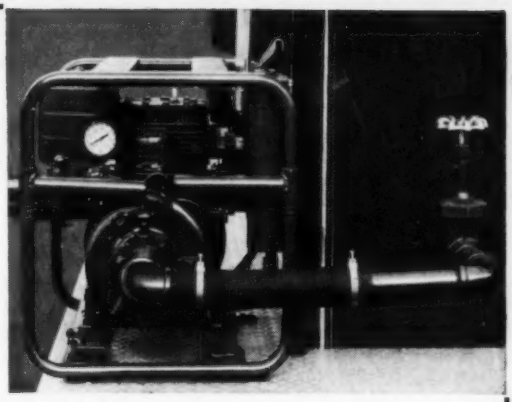
Mr. Kendall, who joined Rockwood in 1908 when it was the Worcester Fire Extinguishing Co., was successively assistant manager and purchasing agent. In 1928 he became works manager and in 1934 was promoted to vice-president and works manager. He helped organize the Rockwood Mutual Aid Association, in 1919, and also started the Rockwood Credit Union, in 1937.

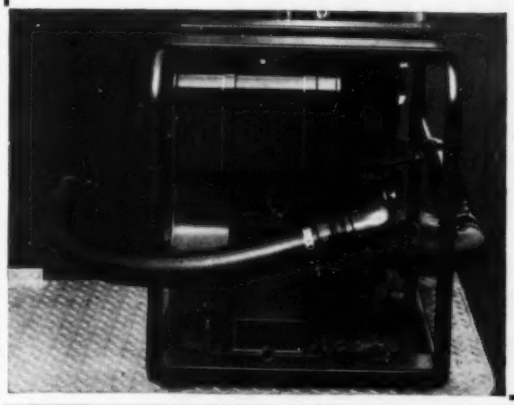
From 1936 to 1953 Mr. Kendall was director of Warren Leather Goods Co., serving as its president in 1944. He retired from that post in 1949. He is a

HALE Type FZZ

Portable Unit Installed on Running board of Apparatus

Picture at right shows Hale FZZ portable pumping unit (from Suction Side) neatly installed on running board of pumper. Shut-off valve at right leading from Booster tank.





Below, view of FZZ from Discharge Side showing Discharge running into Booster line.

Pump can be easily detached to fight fire direct; as standby pump; or to supply larger pumper from source of water inaccessible to the pumper.

The FZZ will supply from draft 2 capable fire streams thru 1½" lines.

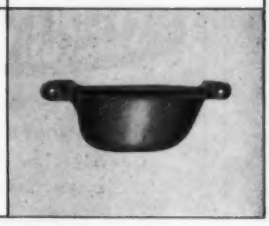
Performance substantially exceeds NBFU and NFPA cap. and pressure requirements.

Write for FZZ folder today. Ask for Demonstration.

HALE FIRE PUMP CO. Conshohocken, Pa.

Fire Pumps in all Standard Capacities

WHY DO MOST FIRE EQUIPMENT MANUFACTURERS—



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ATTWOOD

For Fittings Made to Their Specifications?

The reason is — knowhow. Our modern and complete facilities enable us to start from manufacturers' blueprints and develop special fittings all the way to the final brilliant finish. Manufacturers know, too, ATTWOOD quality is rigidly controlled, while ATTWOOD'S dependability has been proven countless times in actual service. Check with us on your special requirements.

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Grand Rapids 4, Michigan

CAIRNS
FIRE HELMETS
AND
PERSONAL
EQUIPMENT
FOR
FIREMEN

TURNOUT SUITS RUBBER COATS RUBBER BOOTS
RUBBER-LINED MITTENS ASBESTOS GLOVES
SAFETY BELTS OFFICERS' BELTS CAPS BADGES
SECRETARY'S RECORD BOOKS
LOOSE-LEAF FIRE RECORD BOOKS
SECRETARY'S BLANK FORMS

Write for Catalog 351

CAIRNS & BRO., Inc. - Allwood, Clifton, N. J.

SINCE 1836

MODEL 20 SIRENLITE for Emergency Vehicles

Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

STERLING SIRENS

- HANDSOME
- RUGGED
- RELIABLE

Built by proud craftsmen to the highest standards of precision manufacturing . . . utilizing materials of finest quality . . . Sterling Sirens give year-after-year of unsurpassed dependability and satisfaction.

MODEL M GENERAL FIRE ALARM SIREN for Volunteer Systems

Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.

Complete line of Siren Equipment • *Bulletin on Request*

THE STERLING SIREN FIRE ALARM CO., INC.
10 BARTLETT ST., ROCHESTER 8, N. Y.

director of Wiley-Bickford Sweet Corp., and was president of the Worcester County Mechanics Association from 1929 to 1931. He has been on the executive board of the Southern Worcester County Health Association, and was its president from 1941 to 1945.

Mr. Kendall has been a member of numerous civic and service clubs; the American Society of Engineers; a life member of the Worcester Horticultural Society and he has been prominent in several historical, philatelic and fraternal groups. He is a 32nd degree Mason and Shriner.

Oren Announcements

Chief W. M. Mullins, who retired from the City of Roanoke Fire Department on August 1 after forty-three years' service, has joined the Oren Roanoke Corporation, manufacturers of fire apparatus, in the capacity of service engineer and consultant. Mullins is a past-president of the Southeastern Association of Fire Chiefs and a member of long standing in the International Association of Fire Chiefs.

Francis S. Brigham, President and General Manager of the Oren-Roanoke Corporation, was recently elected National Commander of the Twenty-Ninth Infantry Division Association. The Association is composed of thousands of veterans of World War I and II who served with the Twenty-Ninth Infantry Division of the U.S. Army.

Notifier Introduces PN-02-AD Series

Notifier Mfg. Co., 239 So. 11th St., Lincoln, Neb., has introduced a new type fire detection system known as PN-02-AD series which has both Underwriters' and Factory Mutual Laboratories listing and is recognized by rating bureaus for insurance rate reductions when used either for automatic fire detection or sprinkler supervision.

The new systems provide automatic Class A emergency signaling operation for proprietary, auxiliary or local use and have several advantages that should make them of interest to fire fighters and fire protection engineers. Complete information may be had by writing the above.

Gorman-Rupp Issues New Bulletin

Bulletin 9-FD-11 (revised) has been published by The Gorman-Rupp Company, Mansfield, Ohio, manufacturers of portable fire fighter pumps.

The new publication contains all the facts bearing on the company's popular line dual fire fighter units which are desired by fire fighters.

National Foam Conversion Units

The 40-gallon foam engine, for controlling fires in flammable liquids through the use of chemical foam, can now be converted for use with mechanical foam, as a result of a new unit developed by National Foam System, West Chester, Pa.

By installing an Aer-O-Foam Line Proportioner, with check valve and pick-up tube, on the existing engine cap, the engine reportedly can produce as much as 14,000 gallons of foam when connected to a water hydrant under pressures of 90 psi or higher—as compared to 300-gallons of chemical foam pro-

duced by the unconverted engine. Moreover, if not completely discharged, the unused liquid need not be discharged.

Conversion units are available for use with either 3% or 6% liquid—or with a metering valve to handle both concentrations. Address inquiry for complete details to the above company.

Face Mask Offers New Concept of Visibility

"Scottoramic," the new face mask manufactured by Scott Aviation, Erie Street, Lancaster, N.Y., offers greater visibility over conventional type masks. Said to be an entirely new concept in mask design, the wrap-around windshield idea does away with the two separate "peep-hole" eye-pieces.

"Scottoramic" face mask

The new mask has been tested in action and is endorsed by leading airline, fire fighting and industrial safety officials. In addition to improving visibility, the mask reportedly reduces the feeling of claustrophobia. Non-fogging is accomplished by the circular air-washing action of the cool air or oxygen supply. The plastic safety lens is virtually unbreakable. A double lip seal makes the mask comfortable when worn for a long time, even over glasses. It may be donned with one hand, leaving the other free for use in emergency situations.

Microphone and air hose are optional equipment. Complete information is available on request from the above manufacturer.

Thermoid Publication Describes Industrial Rubber Products

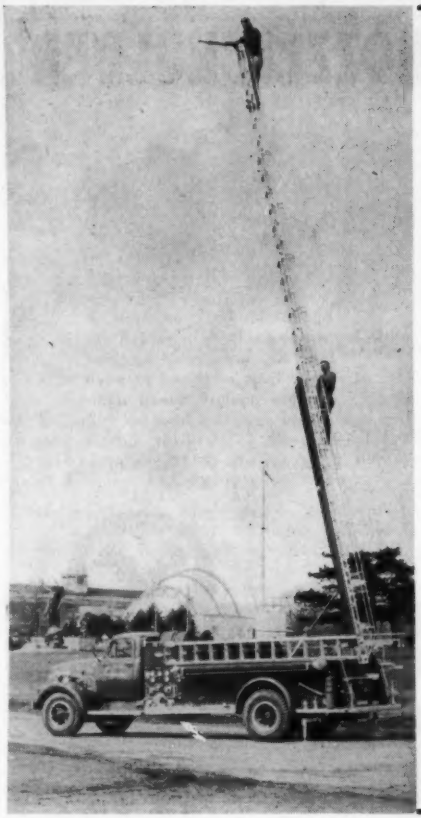
A new 8-page catalog digest giving specifications and descriptions of its 68 different types of rubber hose for industrial and other use has been issued by the Industrial Rubber Division of the Thermoid Company, Trenton, N.J. In addition, the publication contains much other helpful information on its other products.

Address the company direct for your copy.

Morgan Joints Bean Staff

Veteran fire apparatus salesman, L. B. (Les) Morgan has joined the staff of the John Bean Division of the Food Machinery and Chemical Corporation of San Jose. He will represent the company in Northern California and Nevada, where he is widely known to the fire service.

He was formerly with American La-



MEMCO AERIAL LADDER

shown in the picture enables these firemen to direct the water *down* on a fire—the way it does the *most* good.

Every day aerial ladders are proving invaluable in controlling *bad* fires. Equip your Department with a MEMCO AERIAL—NOW! Don't wait until you have had that *bad* fire.

Your Department *CAN* afford a MEMCO AERIAL!

Electrically operated by power from the truck battery—it can be installed on one of your present trucks, or incorporated into a new combination by your fire truck manufacturer.

Photo by the courtesy of LaFrance Fire Engine & Foamite Limited, Toronto, Ontario, Canada, who built this Quintuple Pumper for the Department at Prescott, Ontario.

for details write

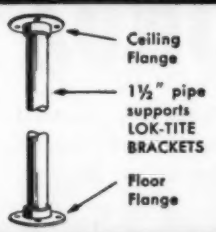
MEMCO AERIAL LADDER CO.
1007 N. W. 36
Oklahoma City 18, Okla.

Build Your Own Hose Storage Racks

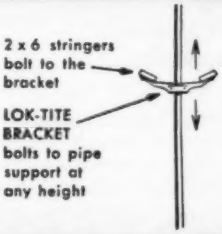
Lok-Tite brackets help solve hose storage problems by providing ample ventilation and easy access for fittings inspection in limited space. Build your storage racks with new or used materials.

FEATURES

SIMPLE INSTALLATION



EASY ADJUSTMENT



Lok-Tite Brackets won't slip under any load the pipe and stringers are able to support.

Lok-Tite brackets, light weight aluminum alloy, designed for strength and easy installation.

Each $3.65 F.O.B. Wichita

W-B MANUFACTURING COMPANY
157 NORTH WACO STREET
WICHITA, KANSAS

TRI-LOC NOZZLE HOLDER

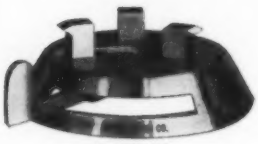


PLATE 653

Accessories easily mounted on truck and easily detached for use. Rigidity assured by three lugs. Lugs machined to pitch assuring against thread damage.

Available in 1½" and 2½" Sizes

ELKHART BRASS MFG. CO., INC.
ELKHART INDIANA

Don't be fooled!..

...there's ONLY ONE Fire Fighting Penetrant UNOX®

● There are many wetting agents—but UNOX is the only penetrant scientifically designed for fire fighting. It is approved by Underwriters' Laboratories for fighting both Class "A" and Class "B" fires.

UNOX alone, makes wet water that is unsurpassed

- for fast, sure fire extinguishing
- for foam fire fighting and fluid insulation
- for 3-dimensional—cooling, spreading, penetration—fire fighting.

● *Be sure you get the genuine. Don't ask for a wetting agent—Specify* **UNOX**

THE UNOX COMPANY
1630 ROBERTS ST. • HOUSTON 3, TEXAS
A Division of McFARLAND MANUFACTURING CORPORATION

France Corporation, and other fire apparatus manufacturers. Mr. Morgan will handle fire equipment for industrial as well as municipal use for the company.

Ward LaFrance Introduces New Aerial

A new aerial ladder truck was introduced and demonstrated to sales representatives of the Ward LaFrance Truck Corporation in Elmira, N. Y., October 4th. The 85' aerial ladder truck, an addition to the Ward LaFrance line of fire apparatus, will be available in January, 1956.

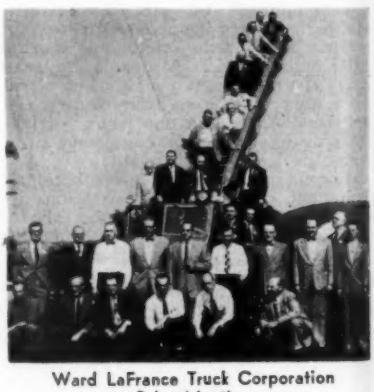
Representatives from territories all over the United States, gathered at Elmira's Mark Twain Hotel for a three-day sales meeting October 3, 4 and 5. The sessions, planned by Brook J. March, sales manager, covered all phases of the selling and servicing of the Ward LaFrance line of fire trucks. A special session was conducted by E. L. Decker, assistant sales manager, to acquaint salesmen with factory practices and procedures where modifications are required or where special equipment is indicated.

F. N. Tracy, vice president and general manager of the company, opened the meeting on Monday morning and described plans for the future and goals of Ward LaFrance in the industry.

A. Ward LaFrance, president of Ward LaFrance International, handling all export sales, gave a historical background of the company and its progress during the past thirty-seven years.

David F. Thomas, chief engineer of the Waterous Company, discussed various types of water pumps and described the new 1956 model Waterous pump that will be fitted on Ward LaFrance pumpers.

Field demonstrations were held at



Ward LaFrance Truck Corporation Sales Meeting

Front Row—left to right—Leon Brown, Service Engineer; R. S. Krause, Factory Manager; F. E. James, Director of Engineering; F. N. Tracy, Vice Pres. and Gen. Mgr.; J. G. Grossman, President; G. Jacobs, White Plains, N. Y.

Second Row—left to right—E. Bones, Asst. Director of Engineering; W. B. Moore, Baton Rouge, Louisiana; O. L. Brown, Des Moines, Iowa; T. Haberecht, Cleveland, Ohio; I. A. Ballou, Jr., Providence, R. I.; E. E. Baldwin, Vice President, Ward LaFrance International; T. A. Miller, Sr., Buffalo, N. Y.; E. Simek, Barrington, Illinois; N. J. Bjorck, Chief Engineer, Fire Apparatus; Curtis LaFrance, Asst. Sales Manager, Ward LaFrance International.

Aerial Ladder from bottom to top—C. Ganung, Weston Mills, N. Y.; G. Barteis, Pearl River, N. Y.; E. R. Kopf, Severna Park, Md.; E. Davies, Scranton, Pa.; R. Parkhurst, Dunellen, N. J.; J. Dando, Elmira, N. Y.; B. Lewis, New York City Branch Sales Mgr.; J. J. Duffy, Trenton, N. J.

Eldridge Park during the meeting. A. R. Norton of the Company conducted demonstrations of pumper operations and testing techniques. Franklin E. James, director of engineering, supervised demonstration of the new aerial ladders.

The highlight of the dinner meeting, which was held in the Showboat Room of the Mark Twain Hotel, was the address by J. G. (Joe) Grossman, president of the company.

The meeting closed on Wednesday following an address by R. S. Krause, factory manager, who described production procedures and conducted a tour of the plant.

John Bean Names Williams Head of Fire Equipment

Bill Williams has been appointed manager of the Fire Equipment Department of the John Bean Division of Food Machinery & Chemical Corporation of San Jose, California. He was formerly District Sales Manager for the Fire Fighter Department in Bean's Lansing, Michigan plant.

Bill Williams

The appointment was made to fill the position vacated by C. A. MacRae, former Fire Equipment Department manager, who recently became manager of a new Food Machinery and Chemical Corporation plant in Sao Paulo, Brazil.

Catalog on Fire Fighting Reels

A helpful addition to the fire service library should be the new colorful 12-page catalog just issued by Ardmore Products Div. of Amco Corp., 2040 Carroll Ave., Chicago 12, Ill.

Data contained are on the company's explosion-proof reels; starter motor reels; hand-wind reels, and dual fire fighting reels. Complete specifications and features of each product are detailed.

Address the company direct for your copy.

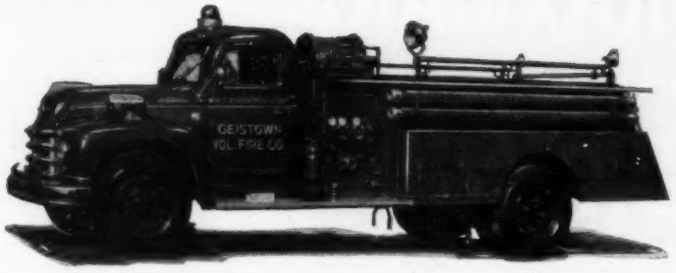
Werner Adds New Ladder Line

The R. D. Werner Co., Inc., 295 Fifth Avenue, New York City, manufacturers of aluminum ladders, has added a new "900" series of "Industrial Alumiladders" featuring improvements in channel I-beam construction.

Top tips of the new ladders have vinyl protective covering and other features such as spring-loaded safety locks and heavy duty aluminum safety shoes, with skid-proof corrugated rubber tread.

The new "900" line is available in single ladders from eight feet to twenty-

Champion Fire Apparatus



A highly efficient pumper apparatus with the Champion Three Stage Centrifugal Pump powered by Diamond T. The Pump is the Type SH750 which delivers 750 gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog.

Or this Darley Apparatus is also available in Underwriter capacities of 1000 GPM and 500 GPM. Modern commercial truck motors have adequate power for either 1000, 750, 600 or 500 GPM pumps.

A few Territories open for Sales Representatives. Write us.

Write for Fire Apparatus Booklet and Fire Equipment Catalog

Factories—Chicago and Chippewa Falls, Wis.

W. S. DARLEY & CO., CHICAGO 12

AT YOUR SERVICE: Sales and Service Representatives—East, Midwest, North, South

always specify

CIRCLE D®

LIGHTS

HERE are lights designed for rugged fire service. Completely weather-proof, shock resistant, compact — sealed beam lamps deliver light output greater than lamps many times their size.

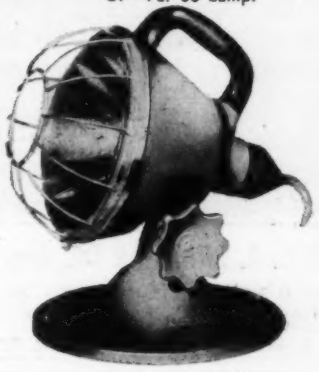
Circle D 3 outlet connection boxes puts power where you need it—more light with less cord.

write for complete data

NATALE
MACHINE & TOOL CO.
339 Highway # 17
Carlstadt, New Jersey

No. 150 High Intensity Flood R-40, 200-300 or 500 Watts.

No. 163 Narrow Beam Spot, 300 Watts—65,000 CP—Par 56 Lamp.



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BADGES

SERVING THE FIRE FIELD

Since 1879

Firemen the world over rely on Braxmar for the finest badges money can buy. We offer the widest possible selection in nickel, chrome plate, sterling silver, gold plate, rolled gold and solid gold; all of our badges and insignia are the work of experts with a lifetime of service.

Write for latest catalog and price list.

Dealer inquiries invited.

THE C. G. BRAXMAR CO., Inc.

JOHN O. VEIT, *President* — JOHN O. VEIT, JR., *Secretary-Treasurer*

216 E. 45th Street, New York 17, N. Y.

feet, two-section extension ladders from twenty to forty feet, and three-section extensions from forty to sixty feet. For complete details address the above company.

FWD Announces New Series

A new DeLuxe series of triple combination pumpers, featuring redesigned compartment-type bodies, power-proportioned four-wheel drive, and 226 to 240 horsepower engines as standard equipment, is announced by Four Wheel Drive Auto Company of Clintonville, Wis.

The new products include four basic DeLuxe series, F-500, F-700, F-1000 and F-1200. Standard engine in the first three series develops 226 to 240 horsepower. All have two-stage, series-parallel centrifugal pumps as basic equipment, ranging from 500 gpm pumps in the F-500 series, to 750 gpm in F-700, 1,000 gpm in F-1000, and 1,250 gpm in F-1200.

New body designs include new front-end styling, larger side compartments, and extra compartments under the cab skirt, and improved tailboard design which facilitates operation of the hose reel and mounting of equipment. Body accommodates 2,000 feet of 2½-inch double jacket hose.

The new Series units have rear-mounted 40-gallon gasoline tanks; larger battery compartments; new auxiliary cooler tank; and Tru-stop, two-shoe, 14-inch emergency brakes. Standard equipment includes a 200-gallon upright, top-filled booster tank with improved fill and overflow, and muffler that cuts noise and improves radio communication.

All of the new FWD DeLuxe series pumper engines meet the basic requirements of the Underwriters. The pumpers are available with coupe-type or semi-open type cab, both with one-piece safety glass windshield and extra-wide, spacious design.

Equipment includes one 24-foot extension; one 14-foot roof ladder with folding hooks; one 6-pound fire ax; 48-inch crowbar; 10-foot pipe pole; 2½-gallon foam extinguisher, and hose connections. Booster equipment includes 150-feet of ¾-inch, four-ply booster hose with fog nozzle.

Neil Slavin, ADT Feted

Neil Slavin, ADT sales representative in New York, retired October 1 and was given a dinner in the Antlers Restaurant in Wall Street. Mr. Slavin had been with ADT for 40 years. Ray Hyde, editor of the ADT Transmitter, was master of ceremonies. About 200 attended.

Mr. and Mrs. Slavin departed for St. Petersburg, Fla. for the winter. The gifts consisted of U.S. War Bonds and stock certificates.

British Columbia Fire Loss Sharply Up in '54

Fire losses for the Province of British Columbia were sharply up in 1954, according to the Annual Report of the Fire Marshal, W. A. Walker. The total loss was $10,177,702, compared with $8,080,490 in 1953. There was an increase of 665 fires. Loss of life for the year totalled 72.

A Gift Suggestion

If you have in mind a little Christmas remembrance for some of your friends in the fire service, why not make it a year's subscription to FIRE ENGINEERING?

There is hardly a gift that would be appreciated more—and it carries its friendly greeting the year 'round.

Just send us the names and addresses (we'll check and let you know promptly if any are already on our list) and then just before Christmas a copy of the December issue will be sent to each along with a letter stating that a year's subscription is being entered with your compliments and the season's best wishes. We'll bill you at $3.50 each. That's simple enough, isn't it?

Better attend to this now, before the rush starts.

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NEW YORK 17

N. Y. Firemen Win Scholarships

Three members of the New York City Fire Department, one a captain and two firemen first grade, are among the eight working men and women who have received scholarships to New York University's Washington Square College of Arts and Science, Dean Thomas Clark Pollock announced recently.

Awarded annually by the College's evening division, the scholarships are valued at $3,200 each. They cover all tuition costs leading to the bachelor's degree. In the past 18 years, 29 recipients have graduated, several with honors.

Joining the fire fighters as scholarship holders in this year's evening freshman class are a hospital secretary, an accountant for an insurance company, an insurance clerk, a bank teller, and a writer.

The three college-bound firemen are Capt. Stephen A. Downes of 309 Avenue C, Manhattan, attached to Ladder Company 28 in that borough; Fireman First Grade Dudley Maurice Glasse of 2225 Fifth Avenue, Manhattan, a member of Engine Company 91, also in Manhattan; and Fireman First Grade Edward M. McQuillan of 82-19 Penelope Avenue, Middle Village, Queens, attached to Ladder Company 136 in Queens.

Capt. Downes, a fireman since 1939 and in his present grade for the past two years, plans to take a pre-law course. The former Navy petty officer hopes to go to law school after receiving his bachelor's degree.

Fireman Glasse, a former 2nd lieutenant in the Army Air Forces, has been with the department since 1947. He is planning an engineering course at NYU.

The third scholarship winner in the Fire Department has been in the department since 1947. He is Fireman McQuillan, an Army Air Forces veteran. He will begin his studies in insurance with the opening of the fall semester.

The nominees took a competitive examination at Washington Square College in June. According to Dr. Morley Ayearst, director of evening studies at the College, the winners were chosen on the basis of leadership capacity and the scores made on the examination.

Evening scholarship students are expected to complete their studies within six years, Dr. Ayearst said.

College bound are these three members of the New York City Fire Department who have received scholarships for evening study at New York University's Washington Square College of Arts and Sciences. They are: standing, Captain Stephen A. Downes; seated (left) Fireman First Grade Dudley Maurice Glasse and (right) Fireman First Grade Edward M. McQuillan.

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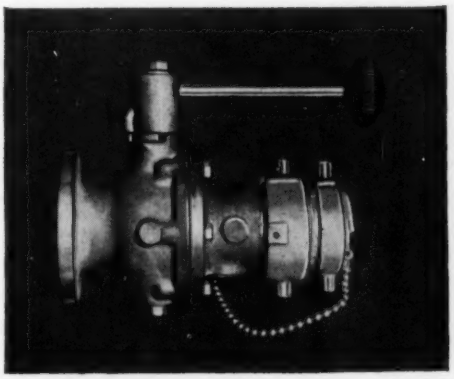
Valve is also available with 2½" Navy-Type slotted swivel and slotted plug.



Above—View of 2½" Hale Ball-Type "BL" Suction Valve shown with female National Standard Thread and Pin-Lug Plug and Chain. Plug and chain are optional.

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The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Like the Old Melodrama

Jack Van Dermeir, 22, may've named his dog Topsy after the heroine of Uncle Tom's cabin. In that melodrama, if we recall it, the dogs chased Topsy over the ice. One of the best wheezes of the old show biz was that in most Uncle Tom shows the dogs were good but they didn't have very good support.

Well, Van Dermeir's dog wasn't concerned with the ice, but rather with fire. And as a result, she bit her owner twice on the left hand, good and hard because she was real mad. She was mad because Van Dermeir unwittingly set fire to her! It happened like this:

Van Dermeir was washing some automobile parts in gasoline at a filling station. The pail of gasoline caught fire. Van Dermeir tossed the mass of flames through the door just as Topsy was passing by it.. Topsy took fire—and Van Dermeir took off after Topsy (who took off for points West) in an effort to catch his pet and put out the flames.

When he caught her—which he finally did—the ungrateful canine bit him—putting him in the hospital.

Nobody has told us what happened to Topsy!

* * *

Red Faces in the "Cold Gray Dawn"

It was a cold, gray Sunday morn' when a second alarm sounded at 9:53 A.M. in stations of the San Francisco Fire Department.

Coming a minute later than the first alarm, and from the corner of Scott and O'Farrell Streets, across from the Benjamin Franklin Junior High School in an older section of the city, none of the brothers "stood on the order of their going"—but got!

As apparatus and emergency rigs converged on the scene of the supposed emergency, the air was filled with the racket of sirens, bells and roaring motors in what feature writers lovingly call a cacophony of sound. But to the eager-eyed, turnout-encased blazebeaters no fire showed. The school, whose 1,000 pupils were still on vacation, was the only placid, quite thing in the district.

And right in the middle of the melee, maelstrom, mix-up or whathaveyou, stood red-faced Battalion Chief Henry Lindecker, veteran of 21 years with the department, including five as chief of battalion. Surrounding him, pop-eyed with excitement, was his class of rookie firemen wondering, along with the startled chief, just what was happening.

By the time the confusion was straightened out—together with some fifty or more fire fighters, twelve pieces of fire equipment, an ambulance, two police cars, press cars, the rescue squad—and top Fire Chief Frank Kelly, the facts had come to light.

Seems that Chief Lindecker had taken his class of neophytes out on one of the matutinal Sunday drills. This one at Scott and O'Farrell, where the instructor-Chief was to demonstrate what happens when you send in a "multiple."

Somewhere between the box and fire alarm headquarters and the office of Fire Dispatcher Harry Giddings, the practice alert had become lost: somebody goofed. The code tapped out in Morse by the Chief to alarm headquarters that "This is a drill" somehow or other was not received. And so, bingo! All hands, man the pumps!

Chief Lindecker sent in his first alarm at 9:52 A.M., his second at 9:53. Next, he called the rescue squad.

He told the class: "If this was a real fire, in about two minutes or less the equipment would start to arrive."

To his consternation it did—not just the first-alarm forces but reinforcements galore, including the Chief of Department in his big red sedan. Twelve pieces of apparatus from seven fire stations and the rescue unit from away off Fifth and Jessie Streets, with its crew wearing their smoke masks at the "ready," all came barrelling in.

Bewildered, but not rattled, Chief Lindecker said he was just about to show his students how to bang in the third and fourth alarms, as well as five other special calls, including a water tower, when the first engine company, from Geary and Divisidero pulled in. "Was I ever surprised to see the first piece of equipment arrive" he said. But nothing dismayed, he told his class: "That will conclude the lesson for today."

"Anyway," he concluded to his inquiring fellow firemen and proby's—"It proves our alarm system works!"

P.S. Henry Lindecker has a brother Bill, also a Battalion Chief (Batt. 2, when we last swapped yarns with him). The two brothers are looked upon as among the Department's outstanding chief officers.

* * *

"Yellow Hornet" Stings Hempstead Vamps

The "Yellow Hornet," a highly decorative, and ultra-powered, souped-up "hot rod," with chrome-plated innards' has been the pride and joy of the Village of Hempstead, L. I., Fire Department for lo these many moons and tournaments.

, But tragedy struck the vamps. Somebody swiped the chrome intestines—the expensive high compression heads; intake manifold, dual carburetors, electric fuel pump, and entire ignition system! They figured that some so-and-so stole into the firehouse the night of August 18 and made off with those things that enabled the "Yellow Hornet" to sting its competitors at many a tournament.

Fact is, the firemen who had driven the "Yellow Hornet" in speed competition with other fire companies, had won numerous prizes. So when the inner workings of the exhibition vehicle, to the tune of $700, disappeared, the vamps organized their own volunteer detective force to hunt down the missing equipment and find the perpetrators who pinched it.

Fireman Joseph Esposito got on the trail when he learned that a hot rod, new to the community, was burning up nearby roads. Running down that clue, the trail led to a gas station where a 20-year-old truck driver was sitting in a jalopy. Esposito peeked under the hood—and saw the Yellow Hornet's machinery. Then he saw police who put

the pinch on a carpenter's helper, also age 20, and an 18-year-old lad, both of whom had been seen driving the hot rod. The truck driver also got tabbed. "I told those guys they shoulda never opened 'er up around Hempstead," mourned the latter.

In the first District Court, Mineola, the three were held in $1,000 bail each on burglary charges.

* * *

Youth Sees Red—Takes Fire Chief's Car

They're still talking about it over in Paterson, N. Y.—the youth who copped the fire chief's red car, right outa fire headquarters.

The night of August 15 was so hot that the doors of the central fire headquarters station were left open.

Well, someone just marched right in and drove right out with the battalion chief's bright red buggy.

The spree in the flashy fire car failed to last very long, however. Police notified as soon as the startled fire fighters discovered the absence of the rig, found it abandoned just around the corner, against a cemetery fence, plus a few fender dents.

They renewed their search for the culprit and later pinched an eighteen-year-old, said to have swiped the red vehicle, and another second car, which also wound up in a collision with a guard rail, in nearby Clifton.

The culprit? As usual, out of "consideration for the youth's parents" his name must remain anonymous (except to all his kid friends—and the chagrined fire fighters.)

* * *

Fireman Loses Finger to Siren

It was just a small blaze, in the annals of the Oakland, Cal. Fire Department for October 11, 1955, jut a roof on a small shed in fact, but Hoseman Boysen Thompson, 44, will long remember it.

To Thompson goes the dubious honor of chalking up one of the most Ripley-esque accidents recorded in the nation's fire service.

Responding, with his engine company, Thompson was stretching a hose line between two parked fire trucks; as he swung around the front end of one of them, he lost his balance.

Instinctively he thrust out his arm for support, and his index finger somehow got into the siren of the apparatus, whose rotor was still rotating. The blades amputated his finger.—Thanks PAUL DARRELL.

* * *

Here's a Switch

Three boys, John Smith, 15; Billy Murphy, 14, and Vincent Leone, 15, did their best to extinguish a fire on the third floor of the Sacred Heart School in Waterbury, Conn., on Oct. 6, last, before it could involve the structure which houses a combination parochial high school and grammar school, but were unsuccessful.

Discovering the fire from across the street, they rushed into the building, grabbed up extinguishers but were driven back by the heat and smoke.

One of the lads, John Smith, became separated from his mates and had to be rescued from the main assembly room as he was about to jump from a window.

Fire Marshal George Carroll estimated the loss at $75,000.—Thanks TOM *Magner.*

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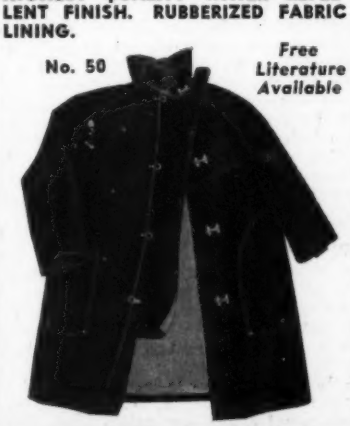

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Short Cuts and Gadgets

SUPPORT RELAY OPERATION

One of our steady contributors, Assistant Chief Frank J. Cooney of the Cleveland Fire Department, offers this one for our consideration.

Many times, no doubt, fire chiefs have been confronted with the problem of pumpers "losing" their water.

This condition occurs frequently to the box alarm companies which are operating at a multiple alarm fire. The box alarm companies are closer to the fire and the later responding companies usually take positions which reduce the supply to the more strategically positioned pumpers. This is especially true where the fire location is near the end of a pressure zone or an area where "dead end" mains prevail.

A successful method has been used by our department (Cleveland) at three recent major fires where the aforementioned conditions were present.

A pumper operating from a higher pressure zone service, or from a better supply, and having thereby an excess residual pressure, supported the pumper running close to a vacuum. A line laid to the gated suction connection (usually the rear connection) was used for this purpose.

In this set-up, which indeed may not be entirely original, full use is made of all available supply, however. The pumpers close to the fire act as "boosters" in the operation. However, precaution must be observed. The pressure must not be built up on the supporting line before the intake valve is opened. The higher pressures would prevent the operation of the valve.

As has been indicated before, in most cases the first-line companies are usually the most strategically positioned for the development of large-caliber streams but, unfortunately, do not obtain the proper supply. This "support-relay" operation, we have found, overcomes much of the difficulty, Thank you, Chief Cooney.

* * *

BRITISHER SUGGESTS PATROLS

Although this nation's fire service is doing a very creditable job in radio fire inspections, which are second-cousin to fire patrols, very few fire departments have attempted to conduct any comprehensive patrols, the most notable exception being the city of Albany, Georgia, which, under former Fire Chief D. W. Brosnan had his fire fighters out foot-patrolling hazardous areas on certain duty-tours.

The idea of firemen doing patrol work still lingers in the minds of not a few fire officers, notwithstanding the shortage of personnel on working shifts. A number of cities presently send out men to patrol certain hazards at certain times. The patrolling of theatres, ballparks, fairs and public gatherings of all kinds by uniformed firemen is still in vogue in many areas. However, these men usually are not taken from duty crews at fire stations but are detailed from off-shift personnel.

That the British are giving thought to the patrol idea is indicated by "Fire Axe" writing in "Fire Protection Review" (July, 1955). He writes: "I have often wondered whether fire patrols, rather on the lines of police mobile patrols, would be a good thing, particularly in known high-risk areas, at times when outbreaks are most likely to occur. Some Brigades are, of course, operating patrols on heath, common and forest lands, but I have visualized fire patrols as a permanent set-up for industrial areas. Two men in one of the handy little cross-country vehicles equipped with radio, hose-reel equipment or just a standpipe and several lengths of hose, would appear to be the thing. The psychological value of the fire patrol in reassuring the public would be worth while, too."

Perhaps it's too Utopian a conceit, but who knows, one of these days it may come to pass in this land.

* * *

MYRTLE BEACH F. D. HAS NEW TOOL

From Deputy Chief K. T. Trousdell of the Myrtle Beach, S. C., Fire Department, comes picture and description of a new tool which we hasten to pass along to our readers.

The device is used for most of the forcible entry needs of the department, the deputy tells us. It is easy to produce and to handle, he claims.

The lower end of the tool is a wide chisel blade for pry work. Captain John Jones of the Department is shown holding the weight that is run up and forced down the sleeve holder, thereby making it unnecessary to "find the mark" every time the point is forced as with most bars. Thus, according to Deputy Trousdell, there are no misses in prying boards and no extra damage to the woodwork, so common in normal prybar forcible entry operations.

The top of the tool (grasped by the Captain) is used as a prybar. By reversing the bar and riding the weight up and down, a battering ram effect is accomplished.

Seems to us we recollect seeing a

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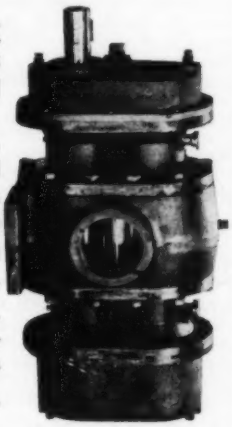

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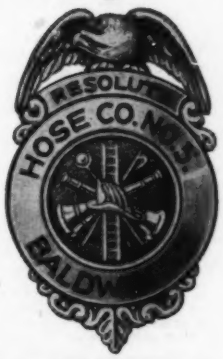

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gadget that worked on this same principle: 'twas used as an icepick, if we remember rightly.

Congratulations to Myrtle Beach boys and Deputy Chief Trousdell and Captain Jones.

* * *

TESTS FOR SIREN EFFECTIVENESS

A frequent question among firemen and traffic policemen is whether motorists who claim they didn't hear the siren are deaf, inattentive or just dishonest. Light is being thrown on the subject by a recent test by the Oakland, California, Police Department. It answers those officers and firemen who have had honest doubts regarding the carrying qualities of sirens under certain conditions.

The Oakland test was made to determine the distance to the rear of another vehicle that various types of sirens used could be heard at various speeds. The car used as the violator's car (that is, the car that was followed) was a 1949 police car. The window was down on the driver's side; all other window's were up. There was no radio or other equipment operating at the time of the test. The noise level in the violator's car was 96 decibels. Tested were electronic sirens, motorcycle sirens, and motor driven sirens. We are interested particularly in the motor driven sirens. The results showed: A siren sounded on top of the police car, over the front seat, could be heard 40 feet away at 50 miles per hour and only 10 feet away at 60 miles per hour. Conditions for the tests were ideal—no distracting influences within the car and the driver was aware that the tests were being made. "What would have been the results if he had the radio going, two children fighting in the back seat, his wife berating him for a blond hair on his collar and the Irish terrier licking his ears?"

These tests point up our over-estimation of the distance that our apparatus sirens can reach. This also points up our need for exercising more care when approaching vehicles from the rear; many drivers do not use their rear view mirrors when driving, so don't depend on your red lights. We should not take for granted that they see our lights or hear sirens. Too often we see apparatus go through an intersection fast and it isn't until the trucks have gone that most motorists realize what has happened.

MORAL: Don't over-run the sound of your siren and even then, assume the other driver is deaf.

(From "Traffic Digest and Review," Copied from Fire Service Bulletin of University of Maryland.)

* * *

A "DISCOURAGER" FOR SWIPING CARBON TET

It has been known to happen that when a man went to use a vaporizing liquid (CT) extinguisher on a small fire he found the device devoid of extinguishing agent.

No, ten-to-one, the contents didn't vaporize. It was simply a case of somebody appropriating the carbon tetrachloride for their own selfish needs—doubtless cleaning of soiled garments.

To put an end to such practice, all that is necessary is to add ink or some other "discourager" to the CT used in extinguishers.

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PRACTICING PHYSICIAN SPEAKS UP IN DEFENSE OF THE FIRE BUFF

Differentiates Between the Sincere, Helpful "Spark" and the Crackpot

By Carl W. Irwin, M.D.
Surgeon, Association of Fire Chiefs of Maine

THIS article is not a wheedling, pity-the-poor-buff, throw him a crumb plea. No association of people interested in the same objective is worthwhile, unless each has something to offer. Such a worthwhile association of buff and professional fireman is practical and desirable, regardless of the size of the Fire Department or the number of paid firemen. Each has something to offer the other, and each has something to gain from the other.

First, a definition is in order. In speaking of a fire buff, the screwball, the emotionally-unstable, and the sidewalk fire chief must be excluded. The true buff, or spark, is a stable, emotionally-mature individual with a sincere interest in the science and practice of fire control. He may be a clergyman, a business man, a physician, or a day laborer. He may be wealthy, or he may wonder where the next can of beans is coming from. But he has as much to offer the paid fire department as the department has to offer him.

What are the things that each has to offer? The obvious thing offered by the buff is added manpower—but this is probably the least important. The City Chief is often aware that a good relationship between his department and the buffs is of inestimable value where public opinion is concerned. Does he need a larger appropriation? The buffs start phoning the men on the purse strings. Do the men want a larger income or shorter hours? The buffs quietly begin putting pressure where it will do the most good. Did he pull a political boner? The buffs may get him off the hook. Is some do-gooder trying to "improve" the fire department? The buffs often help take the pressure off the harassed chief.

The buff wants very little for doing all this. He wants a sense of "belonging," and as active a participation as possible in his avocation of fire fighting. The extent of this participation necessarily varies, but it is a rare city that can find no place for the useful efforts of the sparks.

To take up the simplest facet, that of manpower. The buff is in no sense in competition with the paid men. He has no desire to become a full-time fireman in most instances; that would destroy his hobby and make it a job. Buffs cannot reduce the full-time manpower requirements of a department. Granting the fact that added manpower is needed, why not use the buff to the fullest extent possible? Discipline is no problem; the buff takes and follows the orders of fire officers at least as well as the paid men. The risk of injury is a tough problem, which may be met in a number of ways. The buff may be limited to specific jobs at a fire; he won't grouse, if he's a real buff. Accident insurance coverage is available in a number of ways. The genuine buff will follow safety rules to the letter.

One practical way of using buffs is assignment to the ancillary services: salvage, commissary, first-aid, or even crowd-control. Many buffs have outstanding civilian skills which can be specifically utilized. Many departments, with thin medical coverage, have buffs who incidentally are highly-trained physicians. Experts in other fields are similarly available and valuable.

A surprising number of buffs enter the civilian sections of the Department in the course of their hobby. There have been excellent Commissioners who fall

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF FIRE ENGINEERING, published monthly at New York, N. Y. for Oct. 1, 1955.

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EDWARD B. WINTERSTEEN,
Executive Manager

Sworn to and subscribed before me this 28th day of September, 1955.

ANNE L. DEMARINIS,
Notary Public, State of N. Y. #41-0914700
[SEAL] Qualified in Queens County
(My commission expires March 30, 1957.)

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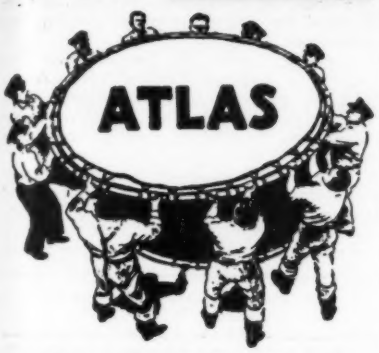

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in this group, and lucky is the Chief who has a sympathetic ex-buff Commission to back him up.

Each Chief should analyze his local buff situation, to see if these men are being used effectively. He would do well to encourage the organizations of buffs—after making certain that the members are real buffs, and not just potential nuisances. He should find a place in his organization, and make certain that adequate training is given the buffs for any specific duty he may assign. He should endeavor to educate the members of his department regarding the function and value of the local sparks. He can offer the buff one thing: the opportunity of helping the department while enjoying his hobby.

The buffs are here. Let's use them!

Chief Alderson

(*Continued from page* 1120)

two, three down the civil service list. I would have to be entirely convinced that number one was incompetent before I'd recommend any other man."

Chief Alderson told FIRE ENGINEERING that if he does retire from his post, he will rest and perhaps do some writing on professional matters of interest to the fire service.

Chief Alderson, if not the most, certainly one of the most honored fire officers in this nation's history, has held the following positions:

Past president of the International Association of Fire Chiefs, the Southern California Fire Chiefs Association and the Pacific Coast Inter-Mountain Association of Fire Chiefs. He also served two terms as fire representative with the League of California Cities, was a past board director of the National Fire Protection Association and served on numerous civil defense agencies and was a member of the State Advisory Committee.

Chief Alderson won a Rhodes Scholarship to Oxford University while studying for the Methodist ministry at the University of Delaware. He was never able to take advantage of the scholarship because they were canceled at the beginning of World War I.

If Chief Alderson leaves, he may be giving up a proposed pay increase for Los Angeles city department heads which would have made him the world's highest paid fire chief at $20,000 a year. His retirement now would be at two-thirds of his current salary, or roughly $10,000 a year. He's been eligible for retirement for 12 years, a fact which makes his long and determined fight seem all the more remarkable.

The drawn-out battle has been marked by a campaign of villification that probably has no parallel in the history of the fire service.

Public apathy, confused even more by one of the nation's most peculiar public information combines, helped create an aura of bitterness and misunderstanding over a problem which Chief Alderson inherited when he suddenly became chief in 1940 with orders to clean up a job sale scandal during the administration of a former mayor. Many of the Negroes now on the department, it is alleged, were illegally appointed, some of them being jumped over 300 white eligible candidates.

To the public, at least, the long racial integration battle has been described as a "Jim Crow" affair between Chief

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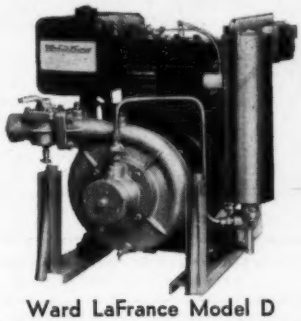

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Alderson and the men of the department on one hand, versus the fire commissioners, with Mayor Norris Poulson only occasionally publicly entering the fray at politically opportune moments.

Actually, the fight has two aspects: one racial, the other political.

The crux of the racial issue is over the integration timetable. Chief Alderson's long range policies have always called for integration during the next 5 to 10 years. The opposition insists that integration come about almost overnight, a stand which has caused loud protest among the rank-and-file who have consistently backed Alderson. They feel outsiders are cramming integration down their throats.

The department's gradual theory of integration is directly opposed to the broad policy of the National Association for the Advancement of Colored People.

The truth of the matter is that Chief Alderson heretofore had been years ahead in his integration policies and at least one Negro organization went so far as to commend him for his progress in integrating the city's 78 Negro firemen. When the fight first came to the public's attention, Chief Alderson's detractors failed to recognize that several Negroes had already been transferred from the city's two All-Negro stations 14 and 30 into the Fire Prevention Bureau and other assignments usually performed by white members of the department.

Ironically, the Los Angeles Fire Department was at one time integrated, but Negro personnel petitioned and were granted their own stations. The arrangement worked well for many years.

The entire problem became greatly complicated when politics entered the picture. Although Los Angeles' politics are non-partisan, Chief Alderson as a private citizen voiced his concern at the

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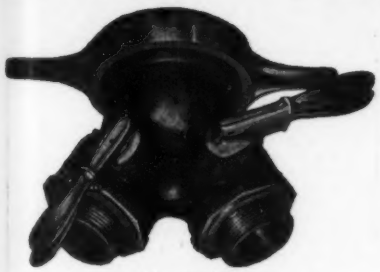

Fig. 164AN

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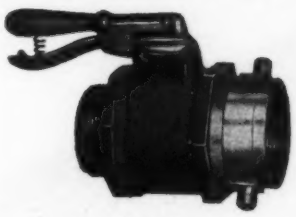

Fig. 163

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handling of a congressional probe into the city's public housing program.

The congressional investigation was timed just before a municipal election in which anti-Bowron forces determined to oust him from office for his pro-public housing position. Bowron, who had installed Chief Alderson, was subsequently voted out of office and the Poulson regime took over.

The race issue became a convenient smokescreen for political retaliation against Alderson and groups which heretofore had never distinguished themselves as champions of NAACP policies, joined forces to squeeze him out of office and to alter Civil Service Commission policies.

The local Communist daily newspaper also played up the statements made by Alderson's enemies.

The campaign of hate took even more insidious turns.

Chief Alderson's wife and family have been the targets of sinister early morning telephone calls threatening bodily harm. His school-age grandchildren are chaperoned every foot of the way to classes.

Late one night a group of squad cars circled Engine 10, site of the alleged charges of hazing, and a police lieutenant said he was sent by a high police official to investigate a "riot." The three concerned Negro firemen meanwhile were peacefully asleep in the bunkroom.

When he told reporters of his intention to retire after devoting more than 30 years to the department, Chief Alderson added:

"I hate to leave like this, but here I am. This is a sorry way to end a job I've carried on for more than 30 years, 15 of them as chief engineer. I'm a good soldier, I hope."

The NAACP in a statement issued after Alderson's press conference said:

"The effect of Chief Alderson's announcement remains to be seen. This may be a grandstand play. Even if he does actually retire, he leaves behind a staff of underlings who have been an integral part of his program of racial bigotry. Our sincere hope is that democracy will now prevail within the department."

Speculation immediately arose as to Chief Alderson's successor. Several names have been proposed, but all of them bear the indelible stamp of Chief Alderson's training and views.

The Los Angeles Herald-Express in editorializing on Chief Alderson's distinguished career called his announcement "deplorable." Equally deplorable to observers both inside and out of the department was the utter silence following the announcement from various organizations and the public as well which has enjoyed low fire insurance rates.

It is indicative of the confused misunderstanding over the issue that the potential loss of a chief whose administrative abilities have built one of the world's finest fire protection and prevention organizations fails to elicit leadership with the avowed intention of retaining Alderson or at least arriving at an equitable solution to the problem for the welfare both of the City of Los Angeles and the Fire Department.

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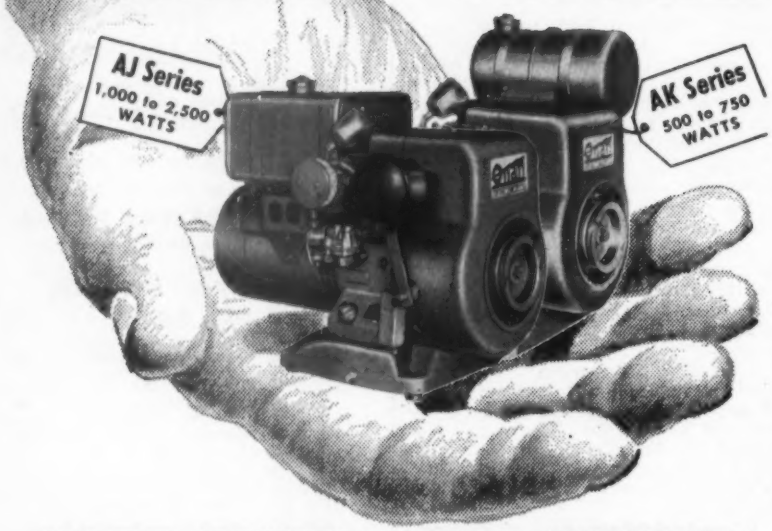

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